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# Costa Rica:

The Gem of  
American Republics.



The Land, Its Resources and Its People.

.. By ..

Richard Villafranca,

Delegate sent by Costa Rica to Study the System of Public Instruction in the United States.—Former Consul General of Costa Rica to California.—Secretary of the Delegation of Honduras to the Pan-American Congress, 1889-90, at Washington, D. C.—Sub-Director General of the National Bureau of Statistics at Costa Rica.—Commissioner of Costa Rica at the Cotton States and International Exposition at Atlanta, Ga., 1895.



NOTE.—Mr. Richard Villafranca will be accessible at the Cotton States and International Exposition for all intending visitors to Costa Rica, and will be pleased to give personal letters of introduction, and furnish any additional specific information that may be required. All communications should be addressed to the Costa Rica Pavilion, Atlanta, Ga., until December 31st, 1895, and thereafter to care of TYPOGRAPHIC DEPARTMENT, Sackett & Wilhelms Litho. Co., 110 Fifth Avenue, New York.

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## Author's Dedication.

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To the People of the United States, *because I appreciate their incomparable thrift and unparalleled industry, and because my long residence among them, has aroused in me an honest sentiment of deep fraternal sympathy in their welfare.*

To the People of Costa Rica, *with earnest gratitude, and full appreciation of their kindly feeling.*

To the Students of these Facts, the Visitors and New Settlers of Costa Rica from the United States, *because I have a congenial interest in the welfare of Costa Rica, and a well-founded conviction, born of long experience, of its resources, and because I firmly believe that the country will never reach the high state of development and prosperity which its wealth warrants, without the aid and hearty co-operation of Yankee energy.*

To These and all Others, *interested in acquiring for themselves a brighter future, I dedicate this series of facts and notes.*

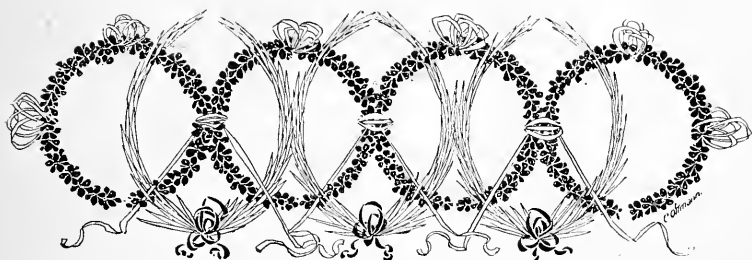




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## Introduction.



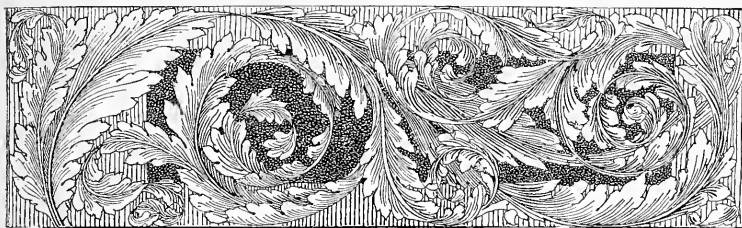
AFTER having traveled extensively throughout the United States and Costa Rica, and visited nearly all the republics from the Isthmus of Panama to the greatest of the World's Republics—the United States—I humbly present this series of notes, facts, and impressions of Costa Rica. The material has been gathered in a neutral way from all accessible resources, and especially from my personal connections with the National Bureau of Statistics. This favored position has enabled me to gather valuable information, which I present in this pamphlet in a somewhat disconnected style. My definite appointment as Commissioner of Costa Rica to the Cotton States and International Exposition reached me at so late a date that this pamphlet must, of necessity, be hastily prepared and printed; but I hope that my readers will be able to read between the lines, and gather from the tabulated facts the true story of Costa Rica's quiescent wealth.

Having crossed and recrossed, and lived for prolonged periods in both the United States and Costa Rica, I modestly claim to have viewed things, while in Costa Rica, with an Amer-

ican eye, and have devoted special attention to studying the industries and national resources of the country of especial interest to progress in America.

I have often been strongly impressed, and even grieved, while travelling over the western states and territories, at the hard and unremunerative efforts of an honest people trying to make lands, that seem to me like deserts, produce food. It hardly seems possible that, in this age of adventure and advancement, an almost unlimited territory, with a tropical sun, a temperate climate, assured rains, lands whose fertility are exhaustless, and whose seasons permit of two or more crops a year, should be left neglected, while men, failing to cultivate wastes, die of discouragement. Yet such is the case, and all because of the mistaken, popular report of burning heat, death-dealing fevers, etc., which exist only in the low lands and swamps, and of which Costa Rica has very little. We have, indeed, reached a time when the tide of emigration should go South, to Costa Rica, the tropical land, with a prolonged May day splendor, where neither oppressive heat nor freezing cold prevail, and the flowers are ever in bloom.

It is to the people of the United States, that the Costa Ricans look for true American labor to develop its sleeping wealth. It is to them, that they look for men with the blood of never-dying thrift coursing through their veins. It is from them, and them only, that Costa Rica expects permanent developmental aid, and if this book falls into the hands of men of honest efforts, who can and will unite it to southern lethargy, its object will be effected, and my work, which is devoted alike to the Americans and Costa Ricans, will have served its mission.



## Why is Costa Rica Desirable as a Permanent Home ?\*



TO ANSWER the question that heads this article is, beyond doubt, the easiest thing imaginable, and can be done by simply saying, because pleasure, wealth and health can readily be obtained in this delectable spot. In order to prove that this statement is not exaggerated, I can only say, "Go thither and be convinced!" But before you go, kind reader, permit me to point out some of the most important features of the country.

FIRST :—Costa Rica, with an area of 31,220½ square miles, which makes her twice as large as either Switzerland or Denmark, and three times the size of Belgium, has about 243,205 inhabitants, and a total annual business with foreign countries amounting to \$13,271,779, which averages \$54.57 per individual, including women and children. This is a larger proportion per capita than that of France, Italy or

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\* For more detailed information on this subject apply to, or address **Mr. Richard Villafranca**, at the Cotton States and International Exposition until December 31, 1895; and thereafter at **TYPOGRAPHIC DEPARTMENT**, Sackett & Wilhelms Lithographing Co., 110 Fifth Ave., New York.

Spain, where the rate of foreign commerce is \$40.05, \$14.08 and \$17.62 respectively. The above figures clearly demonstrate that the people are extremely active, and that the resources of the country are marvelous to permit them to accomplish so much, when they are in need of so many of the facilities possessed by older nations, such as scientific workmen, railroads, and improved machinery. These would perform in an hour, the work that now takes the native of Costa Rica one or two days.

The traveler will notice at once, the peculiar configuration of Costa Rica with its range of mountains, transversing the country in almost a southeasterly direction, rising abruptly from the level lands on the coast, and forming beautiful plateaus and extensive valleys at different altitudes, which resemble the terraces in a garden ; its large rivers, many of them navigable, and numberless other smaller streams that irrigate every foot of ground, and afford motive powers for all industries ; with abundance of excellent harbors on either ocean.

All these circumstances explain perfectly the reason for finding in that country the most varied productions of both the tropical and temperate zones, at such short distances that a man can, in one day, attend to his wheat field situated in the colder region of the plateau, give his instructions on a coffee plantation located in a warmer and lower position, descend still further to the sugar-cane " fincas " where he superintends the manufacture of his sugar, and from thence proceed to hotter and lower lands to inspect the works of cacao gathering, banana planting, rubber culture or mahogany cutting.

In this country, where no extremes of heat or cold exist, the most fanciful persons may, in only a few minutes, remove their headquarters to any temperature ranging between 55° and 82°, and whatever locality be their choice, they will always find that the temperature selected will remain almost unchanged throughout the length of their visits, though extended for a year.

There you can find stores where all the luxuries of the

European markets are sold ; markets well provided with the necessities of life and dainties to satisfy the most capricious appetite ; houses, large and small, comfortable and pretty, but, remember, they are no palaces ; coquettish parks where excellent bands play several times a week for the benefit of the citizens ; public buildings, large, substantial and even elegant, but not costing twenty millions of dollars, as did the capitol of Albany, naturally do not pose as marvels ; schools and colleges provided with competent native and foreign teachers where children may get a very good education ; hospitals and other charitable institutions ; mineral springs, warm and cold, with excellent medicinal properties ; fertile and abundant land that yields everything imaginable ; rich mines of gold, silver, copper and iron, mercury, coal, silix, white and variegated marble, onyx, sulphur, pumice stone, alabaster, alum, quartz, crystal, etc. ; forests containing valuable woods for building, dyeing and furniture making ; and finally, a government thoroughly republican, that besides protecting the rights of each citizen, is willing to offer every inducement to honest foreigners who desire to establish themselves in a country, where the people are most hospitable, and ready to welcome with open arms, every one who comes into the republic, bringing new elements of progress and civilization.

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## How to Get There.

There are two important ports in the country ; Puntarenas on the Pacific Ocean, and Port Limon on the Carribbean Sea. Both of these ports are touched regularly by comfortable steamers. For travelers from any of the Eastern section of the United States, the best plan is, undoubtedly, to engage passage in one of the weekly steamers which, leaving the port of New York, sails by way of Colon to Limon ; this route is perhaps the longest, requiring from thirteen to fourteen days

to land in the territory of Costa Rica, but it affords perfect comfort, as the steamers used by the two lines, which run between the ports mentioned, are provided with everything necessary for the convenience and pleasure of the passengers.

Another route is especially serviceable for people leaving any of the Southern or Central States; this goes from New Orleans directly to Limon, and consists of small steamers engaged in the banana trade. This trip is made in from four, to four and one-half days, a circumstance which, together with the low cost of passage, is quite an inducement to those who are willing to disregard the lack of comforts on the vessels.

There is a third route which is usually adopted by the people from California or others of the Western States. By this route steamers are boarded in San Francisco; after touching at many of the Mexican and Central American ports, passengers land at Puntarenas, after a period of fifteen or sixteen days. This trip affords the traveler many opportunities of visiting the main sea ports of Mexico and Central America, and even a few of the interior towns; some of the points not in its favor are its long duration, and the inconveniences experienced in journeying from Puntarenas to the capital of the country, a jaunt which is both tedious and expensive, owing to the many changes from the railroad to the backs of mules, and vice-versa.

For Europeans the best system is to take a steamer from any of the principal ports, bound direct to Colon, where they select the route which best suits their purpose. If desirous of saving time, the most practical way of reaching Costa Rica is by embarking on one of the vessels that run between Colon and Limon, making the trip in about a day and a half; but if they wish to visit the mines or farming lands of the western slope, the most feasible plan would be to cross the Isthmus of Panama by rail, and take there, one of the steamers sailing to the Central American ports, reaching Puntarenas in a day and a half after leaving Panama.



# The Time and Cost.

LINES.	STEAMSHIP LINES.		DATE FOR SAILING.	FARE.			TIME IN TRAVELLING.	REMARKS.
	LEAVE	REACH		1ST CLASS	2D CLASS	STEERAGE		
PACIFIC MAIL STEAMERS	New York	Colon	{ 3 times a month or every ten days }	\$90.00	\$40.00		8 days	{ Connect at Colon with British Royal Mail Co., to Port Limon; thence to San Jose by rail.
PACIFIC MAIL STEAMERS	San Francisco	Puntarenas	{ 3 times a month or every ten days }	\$105.00		\$52.50	20 days	
ATLAS STEAMSHIP LINE	New York	Limon	{ Every other Wednesday }	\$80.00			14 days	{ Stopping en route at Kingston, Jamaica.
COSTA RICA LINE	New Orleans	Limon	{ Wednesday, A. M. }	\$50.00	\$40.00	\$25.00	4 ½ days	
COSTA RICA AND HONDURAS LINE	New Orleans	Limon	Wednesday	\$50.00			9 days	

## To Reach the Capital—San José.\*

When the traveler arrives at Puntarenas, where the landing is made in pretty little boats which carry him to a substantial iron pier, he must procure "carreteros" to carry his baggage in ox-carts to the interior, paying for such services from thirty cents to one dollar and a half per arroba (25 pounds), according to the season; the rates are highest during the winter, and lowest in the summer season. As it takes from five to eight days for the ox-carts to reach the capital, it is wise to carry small valises containing a couple of suits and some changes of linen. It is also quite important to engage the services of a man or "maletero" to attend to the horses or carry the valises.

When all these preparations have been made, the next step is to purchase a railroad ticket for the journey of the fourteen miles which separate the port from a small town called "Esparta"; here horses have to be engaged to ride to the city of Alajuela (36 miles) over a road which passes through a number of little towns and settlements. It is often the case that the horses will become lame or tired, and travelers are compelled to remain a day, and perhaps a night, at a peasant's house or in a village where there are no hotels; hence it is quite necessary to carry saddle-bags well supplied with edibles, and also a few blankets.

On arriving at Alajuela the mules are left, and the passengers are glad to rest on the luxurious cushions of a train which runs to San Jose (the capital), a distance of thirteen and one-quarter miles.

The traveler lands at Limon without having to go through the annoyances experienced in most ports of Central America, for, when the steamer reaches the magnificent wharf, he finds

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a commodious railway which will convey him to a place near Reventazon. Here the road branches off, and the traveler may remain in the same train, which will take him through beautiful forests and imposing canons to the old capital (Cartago), and thence to San Jose, making the whole trip in about six or seven hours. If, on the other hand, he prefers to take the branch line to Carrillo, which is the terminus, he will certainly see many a gigantic iron bridge, and the wonderful plains called, "llanos del Sta Clara," where hundreds of banana plantations, thriving in veritable luxuriance, contribute their products to supply the demands of the United States markets; but he will experience the inconvenience of traveling from Carrillo to the capital (twenty-five miles) on horseback, spending an entire day in covering that short distance, and very often suffering the discomfort of a heavy shower.

This latter route was the only available one from Limon to San Jose up to the 17th of December, 1890, when the second line was inaugurated and opened to the public. Notwithstanding the inconvenience of the horseback ride from Carrillo to San Jose, strangers should not fail to make at least one trip to, or from Limon, through that marvelous portion of the country; reserving for another day, the jaunt over the former route, for it, too, is full of incomparable beauties.

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## Geographical Position of the Republic.

Of the five independent nations of Central America, Costa Rica is the most southern, having on the northwest the Republic of Nicaragua, and on the southeast the Republic of Colombia, South America; its eastern shore is washed by the waters of the Carribbean Sea, and its western confine is the Pacific Ocean. It lies between the  $8^{\circ}$  and  $11^{\circ} 16'$  north

latitude, and the  $81^{\circ} 40'$  and the  $85^{\circ} 39'$  longitude west of the meridian of Greenwich.

A casual glance at the map will demonstrate that Costa Rica, by the mere fact of its geographical position, is destined to be, in the near future, one of the most important sections in America, and the possibilities of a rapid growth appear as an unquestionable certainty, when we consider that its eastern and western boundaries are the two oceans, whose waters penetrate into the irregularities of the coast line, forming numberless harbors, safe and attractive, wherein vessels can always find valuable cargoes, brought from the interior either by rail or fluvial communications.

No less important is the fact that either the Nicaragua or the Panama Canal (or both) will have to be built, thus supplying the country with new facilities for transportation, and converting it into a sort of universal warehouse for vessels going and coming from every part of the world.

The salubrity of its climate, the comforts of civilization, the beauties of nature, the hospitality of the people, the undisturbed condition of the political institutions, and the countless resources found in the land, will doubtless make of Costa Rica one of the most desirable of places to immigrants seeking shelter, from either the penetrating cold or the suffocating heat experienced in most other places, not excepting Europe or the United States.

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## Area, Population and Political Divisions.

AREA.—The area of the Republic of Costa Rica is calculated in  $31,220\frac{1}{2}$  square miles, but the probability is that the territory is much larger. There are so many different opinions on the subject, the above estimate has been accepted as

the one that approaches nearest to the truth, until a survey of the country reveals the real extent, and brings before the public the hidden and, undoubtedly, exhaustless resources of the many portions at present unknown.

POPULATION.—The number given as the population of the country is not absolutely correct. Some estimates place it at 250,000 inhabitants, while others give but 200,000. This discrepancy is due to the difficulty encountered in the preparation of the census, which arises from the fear of the villagers to inscribe their names, believing that such registration is intended either for military services or for taxation. Therefore they seek refuge in the forests where they remain until the work is done. To avoid these unsatisfactory results, other plans, less accurate, have been resorted to by the Government, and the official reports for the year 1892 show that the country's population amounts to 243,205.

POLITICAL DIVISIONS.—Inhabitants distributed in five provinces and two "Comarcas" as follows :

#### PROVINCE OF SAN JOSE.

County of San Jose . . . . .	39,112
"    Escasu . . . . .	6,522
"    Desamparados . . . . .	6,471
"    Puriscal . . . . .	6,845
"    Aserri . . . . .	6,030
"    Mora . . . . .	5,814
"    Tarrasu . . . . .	2,583
"    Goicochea . . . . .	3,341
<hr/>	
Total . . . . .	76,718

#### PROVINCE OF ALAJUELA.

County of Alajuela . . . . .	19,300
"    Grecia . . . . .	8,797
"    San Ramon . . . . .	9,928
"    San Mateo . . . . .	3,353
"    Naranjo . . . . .	6,847
"    Palmares . . . . .	2,770
<hr/>	
Total . . . . .	57,203

# PROVINCE OF HEREDIA.

County of Heredia . . . . .	16,480
“ “ Barba . . . . .	2,964
“ “ Santo Domingo . . . . .	5,118
“ “ Sta. Barbara . . . . .	2,845
“ “ San Rafael . . . . .	4,204
Total . . . . .	<u>31,611</u>

# PROVINCE OF CARTAGO.

County of Cartago . . . . .	25,898
“ “ Paraiso . . . . .	7,819
“ “ La Union . . . . .	4,256
Total . . . . .	<u>37,793</u>

# PROVINCE OF GUANACASTE.

County of Liberia . . . . .	5,883
“ “ Bagaces . . . . .	1,476
“ “ Nicoya . . . . .	4,577
“ “ Sta. Cruz . . . . .	5,948
“ “ Las Cañas . . . . .	2,165
Total . . . . .	<u>20,049</u>

# PROVINCE OF PUNTARENAS.

County of Puntarenas . . . . .	8,869
“ “ Esparta . . . . .	3,298
Total . . . . .	<u>12,167</u>

# COMARCA OF LIMON.

County of Limon . . . . .	<u>7,484</u>
Grand Total . . . . .	243,205

Thus the territorial extent of Costa Rica, given as 31,220½ square miles, and its population as 209,644, only averages the small proportion of 6.71 inhabitants for each square mile, which compared with the population of Massachusetts (221.8 per square mile), Rhode Island (254.9 per square mile), Italy (261.79 per square mile), Netherlands (312.86 per square mile) and Belgium (481.71 per square mile), proves that the

population in Costa Rica should not be less than 6,924,707 inhabitants, and as large a number as 15,039,227 could live comfortably and derive the benefits of a country whose surprising wealth is but dimly realized, even by the natives themselves.

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## General Topography.

### Mountains.

The territory of Costa Rica is crossed from northwest to southeast by a range of mountains which ramify in every direction forming high plateaus, extensive valleys and lofty hills, some of which are of a volcanic nature. The principal branches of the main range are the mountains of Talamanca, towards the southeastern portion of the country; the mountain of Dota, located near the centre and running from east to west, forming five or six smaller ranges, the principal of which are known as Cerros de Bustamante, Salvage, Caraigres, Candelaria and Puriscal, which ultimately unite and form the mountain Azul; the mountains of Chirripo and Turrialba in the province of Cartago; Toro Amarillo and Barba in Heredia; Congo, Tigre, Poas, San Carlos and Mt. del Aguacate in Alajuela; Cerros del Sardinal, Camalina, Naranjo and Sarnoso in Guanacaste; Maderal, Matapalo, Campana, Mallasmo, Sta Rita, Ario, Cerros del Ojo de Agua and Cerros de la Cueva in the peninsula of Nicoya; finally, Sal-si-puedes on the peninsula of Golfo Dulce.

The principal peaks, which tower above these mountains, and their heights are as follows: Pico Rovalo (7,200 feet), Ujum (9,600 feet) and Pico Blanco (11,800 feet) on the Talamanca, range and Cerros de la Muerte on the mountains of Dota. The volcanoes in the country and their elevations are: Irazu (11,500 feet) and Turrialba (11,350 feet) in Cartago; Cacho Negro in the mountains of Sarapiquí, and Barba (8,700 feet) in the Barba Mountain (both in Heredia); Poas (8,895

feet) in the mountains of Poas, Alajuela ; Tenorio Miravalles (4,700 feet), Rincon de la Vieja and Orosi (5,200 feet) in the range of Guanacaste. Of the volcanoes only a limited number show any signs of activity, and these were considered nearly harmless until the last of 1888, and the first of 1889, when some severe shocks reminded the peaceful inhabitants of Costa Rica of the existence of these proud sentinels, who shook down a few antique, incommodious houses which they would not consent to longer disfigure the country.

While the country is well provided with such a great number of mountains, whose different altitudes occasion the greatest variety in climate and, consequently, of products, there are also wide valleys located at various heights, most of them being surrounded by stately hills. There are also extensive plains on the Atlantic and Pacific Slopes, on the shores of Lake Nicaragua and the banks of the San Juan River, from which the mountains rise, sometimes gradually, but more often ascending suddenly until their summits are lost in the clouds. These plains, being the lowest, are always the warmest sections of the country, and as they are thoroughly irrigated by countless rivers and rivulets flowing from the neighboring mountains and hills, produce the most luxuriant vegetation that can be desired.

The principal plains or "llanuras" are, in the North, Tortuguero, Guatuso, Sta Clara, Colorado and San Carlos ; in the South, are El General, Pirris, Nueva Sta Maria, Cañas Gordas and Terraba. There are a great many others scattered over the republic, especially in Guanacaste and in the most southern portion of the country, which are not as well known as those mentioned ; these owe their celebrity to their inexhaustible resources.

## **Islands, Peninsulas and Capes.**

The islands in the Pacific Ocean are as follows :—west of Guanacaste we find the islands of Castalinas and Samara. In



the Gulf of Nicoya lie Chira, Venado, Bejuco, Caballos, Benu-gale, Jasper, Alcatraz and San Lucas Islands; the last one is used by the Government, who send there criminals of serious offences. West of the most southern part of the country are found the islands of Onepos, El Caño, and the celebrated island of El Coco, where there is supposed to be a hidden treasure, left there by pirates, and which has been frequently, but unsuccessfully, sought by believers in the legend. On this same island, the Government has erected a penitentiary for the incarceration of criminals condemned to the highest possible punishment.

In the Atlantic Ocean is the island of Uvita which lies opposite the town of Limon; on this island a quarantine station and a hospital have been established by the Government. Forming the entrances to Bocas del Toro and Laguna de Chiriqui Bayo are the islands of Colon, San Cristobal, Bastimento, Popa and Escudo de Veraguas.

The principal peninsulas and capes along the Pacific coast are Capes Descates, Murcielagos, Gorda, Morris, Hermoso, Filibustero, Guiones, and Quinanes on the western shore of Guanacaste. On the eastern side of the Nicoya Peninsula are found Capes Blanco, Bocana, and Vela. On the eastern side of the Nicoya Gulf are Capes Puntarenas, noted for the pretty port located on it, (also called "Puntarenas"), and Capes Caldera, Sucia and Herradura. Laved directly by the waters of the Pacific Ocean, and lying between the Nicoya and Dulce Gulfs are Capes Judas, Dominical, Uvita, Mala, Violin, Llorona, Salsipuedes and Matapalo; the last four are on the western side of the peninsula of Gulf Dulce, while projecting from the eastern side, and into the gulf are Capes Sombrero, Fifrito, Arenitas and Tigre; on the eastern side of this same gulf are Capes Golfito, Del Banes and Platanal. The most southern point on the Pacific coast is formed by Cape Burica, which is the place where the limits of Costa Rica reach Colombia.

The capes on the Atlantic Ocean are Punta de Castilla, which is most northern and marks the beginning of the boundary line between Costa Rica and Nicaragua; Blanca or Portela projecting between the Moin and Limon Bays; Capes Cahuito, Carreto, Monos and Sarabeta on the eastern coast of Talamanca, and finally, Cape Valiente at the entrance of Laguna de Chiriqui.

## **Rivers, Lakes and Harbors.**

The many navigable rivers which empty into the Pacific and Atlantic Oceans, Lake Nicaragua, and the San Juan Rivers, forming natural highways for the transportation of the products of the country, and the multitude of smaller rivers which cross the land in every direction, thus fertilizing the soil, originate from the mountainous character of the country and the short distance between the oceans. Under the influence of the tropical sun, dense clouds are drawn from these two vast bodies of water, swept over the country by the prevailing trade winds, condensed by the gigantic mountains and coaxed to descend, finally, in heavy showers, which thoroughly impregnate the ground.

The density of the forests retains the moisture thus obtained, and produces innumerable crystal-like springs that burst out from the sides of every hill and mountain; many of these streams unite in their course and form the rivers with which Costa Rica is so well provided. The direction in which the rivers flow is determined by the great range of mountains that crosses the country, dividing it into two important slopes, the Atlantic and Pacific; thus it is that the rivers springing from the eastern side of the range empty into the Atlantic, and those on the western side into the Pacific. There is, also, a slope of minor importance, formed by a cross range in the northern part of Costa Rica, which causes a number of rivers to flow into Lake Nicaragua and San Juan River.

The principal navigable rivers are :

RIVER	FLOWING INTO
River Frio,	Lake Nicaragua.
“ San Carlos,	San Juan River.
“ Sarapiqui,	“ “ “
“ San Juan,	Atlantic Ocean.
“ Parismina,	“ “
California,	“ “
Francisco Maria Soto	“ “
Reventazon,	“ “
River Changuinola,	“ “
“ Palacio,	Bahia del Tortuguero.
“ Penitencia,	“ “ “
Naranjo,	Pacific Ocean.
Savegre,	“ “
Baru,	“ “
Tempisque,	Gulf of Nicoya, Pacific Ocean.
Las Piedras,	“ “ “ “

There are eighty other rivers which, though not navigable, are large enough for all other purposes and afford abundance of motive power. Besides these, countless rivulets are found in every direction.

The country has no lakes of great importance. There are a few of small dimensions, and of no use for commercial purposes, but their banks will eventually prove of great importance as sites for winter and summer resorts for the people of northern regions, who may wish to sojourn in Costa Rica. The principal are

Lake Manata toward the northwest near Sarapiqui River.

- “ Poas on the volcano of Poas.
- “ Barba “ “ “ Barba.
- “ Sansan toward the east near Sixola, River Talamanca.
- “ Tenorio toward the west in Guanacaste.
- “ Sicope toward the south, north of Golfo Dulce.
- “ San Carlos toward the north, on the plains of San Carlos.

Both coasts of Costa Rica, the eastern and the western, are well provided with large and sheltered ports and harbors, wherein vessels of any dimensions can safely enter. The principal ones on the Pacific coast are the bays of Salinas, Murcielago, and the Santa Elena in the Gulf of Papagallo situated towards the northwest; the bays of Culebra and Cocos on the coast of Guanacaste; Port Puntarenas, Ballena, Caldera and Herradura Bays in the Gulf of Nicoya; Brava and Sierpe Bays in the southern part of the Comarca of Puntarenas; Agujas, Golfito and Pavon Bays in Dulce Gulf, and, finally, David Bay in the most southern portion of the coast.

On the Atlantic coast are found the Borcas del Colorado at the mouth of the Colorado River, the Bay of Tortuguero wherein empty the Penitencia and Sierpe Rivers; the Parismina Bay into which empties the Parismina River; the Pacuare Bay into which the Pacuare River flows; the Moin Bay and the port of Limon both on the 10th parallel of latitude, Limon being a few miles east of Moin; Port Viejo between Capes Cahuita and Carreta; Sandan Bay which is a little south of the Telire River and a number of other bays in Bocas del Toro and Laguna de Chiriqui.

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## Climate and Seasons.\*

The general impression held by foreigners, who have never visited the country, in regard to the climate is, as in other matters, a very erroneous one. The fact that the southern cities of the United States, particularly the sea-ports, are warmer and, perhaps, less healthy than those of a more northern climate, is no good reason for the belief that countries, lying still farther south and nearer to the equatorial line, must

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be warmer and more unhealthy in the same proportion, as their relative distance from the poles.

The natural conditions of Costa Rica are such, that even located as it is between degrees  $8^{\circ}$  and  $11^{\circ} 16'$  north latitude, no extremes of heat are ever felt. The temperature is uniform and mild throughout the entire year, varying only according to the altitude of the locality. On the coast and up to about 1,600 feet, the temperature varies from  $72^{\circ}$  to  $82^{\circ}$  F.; at 1,640 feet, it is about  $69.80^{\circ}$ ; at 2,625 feet, about  $66.20^{\circ}$ ; at 3,937 feet, from  $57^{\circ}$  to  $60^{\circ}$ ; at 5,905 feet, from  $51.80^{\circ}$  to  $54.40^{\circ}$ , and at 9,186 feet, ranges from  $44.60^{\circ}$  to  $48.20^{\circ}$ .

The mild temperature enjoyed throughout the country necessarily contributes to the salubrity of the climate, and there are, therefore, no endemic or malignant diseases. Nor even on the coast, always warmer, generally low, and often swampy, are known to exist any coast fevers; this is due, perhaps, to the constant sea breezes, which carry away the miasmas, that would otherwise accumulate and injure the healthful conditions of the coastal belt.

To say that on the coast there are never any attacks of malaria would not be altogether exact, for people going from the colder to the warmer regions of the country, or foreigners from more northern latitudes, are subject to them if no proper care is taken to avoid them; for this reason it is advisable not to use too freely the water, fruits and liquors, and to avoid a lengthened exposure to the direct rays of the sun or the dampness of the evening until acclimated; then, living on the coast is nearly as safe as in the interior.

The death rate given below for 1889 will clearly demonstrate that the climate of Costa Rica is, undoubtedly, perfectly healthy. "The total amount of deaths in the whole country was estimated as 2.54 per cent. for each one hundred inhabitants; of these, 1.501 per cent. were children under ten years of age. The mortality in Puntarenas, for the same year, was 3.84 per cent. for every one hundred individuals. The large

mortality among children, amounting to 58.97 per cent. of the whole death rate, is due entirely to the lack of care and knowledge on the part of the peasants in raising their offspring, who are allowed to go barefooted, are scantily clothed, and permitted to eat fruits which are not considered wholesome, even for grown people.

Comparing the above figures with those obtained in other countries, it will be noticed that Costa Rica, even with such a heavy loss of children, has a far better climate than Charleston, S. C., where the death rate is 3.079 per cent. per one hundred inhabitants; Mobile, Ala., 3.12; Louisville, Ky., 3.215; Washington, D. C., 4.868; Montreal, 3.72; Berlin, 2.904; Dublin, 2.91; and St. Petersburg, 5.14. These are but a few of the many large cities located in more northern climes.

There are but two seasons in Costa Rica as in all tropical countries: the rainy season, called "invierno" or winter, which begins in May and ends in December, and the dry season, "verano" or summer, which takes up the rest of the year. As has already been stated, there are no extremes of cold and heat; the temperature being mild and uniform in every part of the country, the trees never lose their leaves, and the various plants thrive equally well in one month as in another; all of which tends to make each season a perennial spring. The seasons, therefore, are only distinguishable by the rain-fall which, on the Pacific Slope, occurs during the months already designated, while on the Atlantic Slope the case is reversed; that is to say, on the Atlantic side, the winter commences in December and ends in May, leaving the remaining six months for the summer or dry season.

None of the scourges that afflict other countries at different times of the year ever trouble Costa Rica; tempests, hurricanes and cyclones are entirely unknown, while floods, which ruin plantations and villages in other countries, never occur in this republic, notwithstanding the copiousness of the rains; this is owing to the mountainous formation of the country.

ALTITUDE, 3,868 FEET. LATITUDE, 9°56' N., AND LONGITUDE W. OF GREENWICH, 84°.

Months. 1886.	Average Temperature. 1886.	Inch Rain Fall. 1886.	Average Temperature. 1887.	Inch Rain Fall. 1887.	Average Temperature. 1888.	Inch Rain Fall. 1888.	Average Temperature in 3 Years.	Average Rain Fall in 3 Years.
January	65.58	.00	65.44	.00	64.94	.630	65.32	.210
February	66.05	.00	65.75	.00	65.22	.709	65.67	.236
March	66.65	2.048	66.79	.669	66.97	.00	66.80	.905
April	70.10	8.983	69.94	.276	67.67	.551	69.23	3.270
May	70.84	15.563	70.10	9.968	68.52	7.092	69.82	10.877
June	70.84	16.863	70.84	12.243	67.84	10.244	69.84	13.116
July	70.25	20.606	70.84	5.614	68.10	5.516	69.76	10.578
August	69.49	19.621	70.39	9.404	66.94	6.185	68.94	11.736
September	68.30	22.930	69.20	11.248	66.97	16.618	68.15	16.932
October	68.45	25.688	68.75	13.561	66.56	10.401	67.92	16.550
November	66.95	16.823	67.76	4.934	67.98	2.009	67.56	7.922
December	66.65	2.285	67.85	2.068	66.52	.886	67.00	1.746
TOTAL,	68.34	151.410	68.63	69.988	67.03	60.841	68.00	94.079

The following table shows the temperature and rain fall of San Jose for the years 1886, 1887 and 1888, and by them may be judged the rest of the country.

In the year 1888, the rain fall in San Jose was 60.841 inches, which compared with that of the United States shows that, out of the sixty-seven principal places in the latter country, only four of them had a greater amount of water than the capital of Costa Rica, while the others have had as much as 51.05, corresponding to New Orleans, La.; 44.43 New Haven, Conn.; 42.18 St. Louis, Mo.; 30.05 Detroit, Mich.; and as little as 9.16, corresponding to San Diego, Cal.; 6.12 Fort Bridge, Utah; and 6.11 Fort Garland, Col.

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## The People.\*

The natives of Costa Rica are principally the descendants of the early Spanish settlers and conquerors, who came to this country in the latter half of the sixteenth century. They are somewhat above their neighboring nations in the arts of civilization, and can usually be depended upon as peaceful, law abiding and loyal citizens, and among them, the riotous and revolutionary elements so prevalent in the Latin States, are quite unknown.

Costa Ricans are noted for their sobriety, simplicity, morality and somewhat limited love of work. They are robust, healthy and long-lived.

## Language.

The prevailing language is like that of all Central America, Spanish, but English, German and French are spoken by many, and one would have little difficulty in traveling over the country without even a rudimentary knowledge of Spanish.

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There are several increasing colonies scattered over the country, and they experience little vernacular annoyance in transacting business. Indeed, one can become familiar with a working knowledge of the native tongue in a very short time.

## **Religion.**

The Roman Catholic faith is the prevailing religion of the country, but the political institution is extremely liberal in this, as in all other matters. Persons of all creeds, and no creeds, are received with hearty good will. Several Protestant churches are thriving, and the greatest harmony exists in all communities, from the highest to the lowest social scale.

## **Public Instruction.**

In Costa Rica education is making rapid strides. Public instruction is entirely in the hands of the National Government, and under the direct supervision of a special minister. Primary education is compulsory and free. Every resident is entitled to the school privileges and can either give or receive instruction.

The Hon. Dr. Pedro Perez Zeledon went to Europe with the special mission of studying the various systems of education, and to his efforts have been added the constant investigations and personal visits made, both here and in Europe, by the noted gentleman, the Hon. Dr. Mauro Fernandez.

The Minister of Public Instruction appreciated the great advantage in the methods of elementary tuition, made within recent years in the United States, and did me the honor to appoint me a delegate to study the American system of public instruction with a view to its adoption in Costa Rica. The Minister is at present using every endeavor to establish high grade schools, and adopting, as far as possible, the system in vogue in the United States and abroad.

The facilities for higher education have not been neglected, and the country boasts of a University, a Young Ladies' High School, a well regulated college, a promising school of agriculture, and in addition to these are many private schools, and the Physico-Geographical and Meteorological Institution, supported liberally by the government. The time is not very far distant when Costa Rica schools will be second to none in the world.

### **Native Aborigines.**

Costa Rica, when compared with the South and Central American States, holds a position that is quite unique and envious in respect to its native Indians. Their numbers are few and their tribes are completely separated from the civilized race. They are quiet and peaceable, looking upon the encroaching civilization with an air of resignation, and honoring white men with almost a spirit of worship.

### **Foreigners.**

The foreigners are not very numerous in proportion to the total population, but those that have selected homes in Costa Rica, have come to stay. Every industrious foreign family is doing well, and their friends are following them as rapidly as possible.

Applications for land and special privileges have been received from families and colonies now struggling against the disadvantages of many of the western American states and territories; more especially from people who have suffered through the droughts and other crop failures in Oklahoma, Dakota, Nebraska and Montana. A representative of a very large colony is at present in Costa Rica, selecting land for people now in Oklahoma, who are preparing to emigrate to a more promising land. The following list, furnished by the Bureau of Statistics, of 1892, gives a fair idea of the actual proportion of foreigners :

LIST OF FOREIGNERS RESIDING IN THE PROVINCES OF COSTA RICA  
IN 1892.

PROVINCES AND COMARCAS.								
	San Jose	Alajuela	Cartago	Heredia	Guanacaste	Puntarenas	Limon	Total
<i>Central America.</i>								
Guatemala . . . . .	90	22	17	6	9	7	9	160
Salvador . . . . .	57	12	9	4	42	56	15	195
Honduras . . . . .	25	10	7	1	33	33	23	132
Nicaragua . . . . .	122	92	24	22	446	468	128	1,302
<i>North America.</i>								
United States . . . . .	103	2	12	—	2	7	78	204
Canada . . . . .	—	—	—	—	—	—	—	—
Mexico . . . . .	29	1	2	—	—	6	—	38
<i>South America.</i>								
Colombia . . . . .	173	39	15	—	37	479	69	812
Venezuela . . . . .	9	1	—	—	—	—	—	10
Ecuador . . . . .	7	7	—	—	—	4	—	18
Peru . . . . .	6	1	—	—	—	—	—	7
Bolivia . . . . .	1	—	—	—	—	—	—	1
Chili . . . . .	6	—	—	—	—	—	—	6
Argentina . . . . .	1	—	—	—	—	—	—	1
<i>West Indies.</i>								
Cuba . . . . .	83	22	7	11	3	8	22	156
Hayti . . . . .	—	1	—	—	—	—	—	1
Jamaica . . . . .	63	6	16	5	1	2	541	734
Porto Rico . . . . .	18	—	—	—	—	—	28	46
<i>Europe.</i>								
Spain . . . . .	509	74	46	44	30	93	35	831
Portugal . . . . .	—	—	—	—	—	—	19	19
France . . . . .	124	12	13	1	6	21	12	189
Germany . . . . .	261	21	15	4	10	10	21	342
Switzerland . . . . .	20	7	1	—	—	—	—	28
England . . . . .	162	6	11	5	7	48	7	246
Turkey . . . . .	2	1	—	—	—	—	—	3
Austria . . . . .	1	1	—	—	—	—	—	2
Denmark . . . . .	17	—	—	—	—	—	—	17
Holland . . . . .	9	1	—	—	—	2	—	20
Italy . . . . .	484	38	50	20	3	15	12	622
Belgium . . . . .	16	—	—	—	—	8	2	26
Russia . . . . .	2	—	—	—	—	—	—	2
<i>Asia.</i>								
China . . . . .	67	17	17	15	5	26	28	175
Hindustan . . . . .	19	1	—	—	—	—	—	20
<i>Africa . . . . .</i>								
	12	—	—	—	—	—	2	14
<i>Oceanica . . . . .</i>								
	18	—	—	—	—	—	—	18
Total . . . . .	2,156	395	262	138	634	1,293	1,051	6,289

## Industries.

The inexhaustable fertility of Costa Rican soil and the extremely favorable climate, that can be depended upon as constant, will for a long time make agriculture the principal occupation. It is, indeed, a coffee-growing country, but as the fields are worked, hundreds of other industries, which are accessory to agriculture, must also thrive. The ground is tilled, and the crops gathered in the most primitive way. Very few labor-saving machines have been introduced. The following tables show the present industries and their increased number since 1883 :

### INDUSTRIES IN THE REPUBLIC,

FROM 1883 TO 1893.

#### PROVINCE OF SAN JOSÉ.

FACTORIES AND SHOPS.	1883.	1888.	1890.	1892.
Foundries . . . . .	2	2	2	2
Blacksmith Shop . . . . .	18	25	27	25
Gunsmiths . . . . .	2	3	3	3
Saw-mills . . . . .	14	16	17	16
Soap Factories . . . . .	3	5	5	5
Printing . . . . .	4	8	8	9
Brick-yards . . . . .	15	21	22	22
Limekilns . . . . .	3	7	8	7
Sugar-mills . . . . .	442	455	457	455
Ice Houses . . . . .	1	2	2	2
Coffee-mills . . . . .	70	80	82	80
Marble-yards . . . . .	1	1	1	1
Sculpturing . . . . .	1	1	1	1
Carpenter Shops . . . . .	28	31	32	31
Breweries . . . . .	1	2	4	3
Distilleries . . . . .	1	1	1	1
Tailoring . . . . .	25	25	26	25
Tanneries . . . . .	8	9	9	9
Shoe Factories . . . . .	32	38	39	38
Barber Shops . . . . .	13	17	18	17
Saddle-makers . . . . .	9	11	11	11
Bakeries . . . . .	20	22	21	22
Drug-Stores . . . . .	10	15	16	15
Dyeing . . . . .	3	5	5	5

PROVINCE OF SAN JOSÉ—*Continued.*

Candle Factories . . . . .	25	5	5	5
Photographers . . . . .	1	2	3	3
Hat Factories . . . . .	2	0	0	0
Bookbinderies . . . . .	1	3	4	4
Watchmakers . . . . .	5	6	6	7
Silversmiths . . . . .	3	4	4	4
Confectioneries . . . . .	0	5	5	5
Flour-mills . . . . .	0	1	1	1
Silk-mills . . . . .	0	1	0	0
Cartridge Factories . . . . .	0	1	1	1
"Fine" Brick-yards . . . . .	0	2	0	0
Furniture-makers . . . . .	0	5	5	5
Lithographing . . . . .	0	0	0	0
Total . . . . .	761	836	851	842

PROVINCE OF HEREDIA.

FACTORIES AND SHOPS.	1883.	1888.	1890.	1892.
Blacksmith Shops . . . . .	6	7	7	7
Gunsmiths . . . . .	1	—	—	—
Saw-mills . . . . .	8	6	6	6
Soap Factories . . . . .	1	1	1	1
Brickyards . . . . .	1	4	5	4
Limekilns . . . . .	5	—	—	1
Coffee-mills . . . . .	7	85	85	85
Sugar-mills . . . . .	54	59	59	59
Carpenter Shops . . . . .	14	37	37	37
Tailoring . . . . .	16	17	17	17
Tanneries . . . . .	9	5	5	5
Shoe Shops . . . . .	13	16	16	16
Barber Shops . . . . .	7	12	12	12
Bakeries . . . . .	5	3	3	3
Drug Stores . . . . .	7	9	9	9
Dyeing . . . . .	1	2	2	2
Candle-makers . . . . .	5	—	—	—
Watchmakers . . . . .	2	3	3	3
Silversmith . . . . .	5	2	2	2
Silk-mills . . . . .	—	1	1	—
Furniture-makers . . . . .	—	1	1	1
Saddle-makers . . . . .	—	1	1	1
Confectioneries . . . . .	—	1	1	1
Total . . . . .	267	272	273	272

# PROVINCE OF ALAJUELA.

FACTORIES AND SHOPS.	1883.	1888.	1890.	1892.
Blacksmith Shops . . . . .	11	11	12	11
Gunsmiths . . . . .	1	1	1	1
Saw-mills . . . . .	35	35	35	35
Printing . . . . .	1	1	1	1
Brick-yards . . . . .	29	29	29	29
Limekilns . . . . .	11	12	12	12
Coffee-mills . . . . .	69	75	76	75
Sugar-mills . . . . .	393	419	415	418
Carpenter Shops . . . . .	20	28	28	28
Tailoring . . . . .	13	13	13	13
Tanneries . . . . .	5	5	5	5
Shoe Shops . . . . .	13	17	18	17
Barber Shops . . . . .	6	9	9	9
Saddle-makers . . . . .	8	8	8	8
Bakeries . . . . .	4	7	7	7
Drug Stores . . . . .	16	16	15	16
Dyeing . . . . .	1	5	5	5
Candle-makers . . . . .	10	—	—	—
Watch-makers . . . . .	3	4	5	5
Confectioneries . . . . .	—	1	1	1
Furniture-makers . . . . .	—	2	2	2
Sculpturing . . . . .	—	1	1	1
Total . . . . .	651	703	699	700

# COMARCA OF LIMON.

FACTORIES AND SHOPS.	1883.	1888.	1890.	1892.
Foundries . . . . .	1	1	1	1
Saw-mills . . . . .	2	3	3	3
Carpenter Shops . . . . .	2	3	3	3
Tailoring . . . . .	2	3	3	3
Tanneries . . . . .	3	1	1	1
Shoe Shops . . . . .	2	3	3	3
Barber Shops . . . . .	1	2	2	2
Blacksmith Shops . . . . .	—	1	1	2
Bakeries . . . . .	—	1	1	1
Drug Stores . . . . .	—	1	1	1
Sugar Machinery, etc . . . . .	—	1	—	—
Total . . . . .	13	20	19	20

# PROVINCE OF GUANACASTE.

Factories and Shops.	1883.	1888.	1890.	1892.
Blacksmith Shops . . . . .	14	9	9	9
Gunsmiths . . . . .	1	1	1	1
Brick-yards . . . . .	17	18	18	18
Limekilns . . . . .	3	14	4	3
Sugar-mills . . . . .	70	72	72	92
Carpenter Shops . . . . .	22	19	19	19
Tailoring . . . . .	26	14	14	14
Tanneries . . . . .	17	16	16	16
Shoe Shops . . . . .	16	12	12	12
Barber Shops . . . . .	4	4	4	4
Saddle-makers . . . . .	4	4	4	4
Bakeries . . . . .	22	2	2	2
Drug Stores . . . . .	3	4	4	4
Dyeing . . . . .	1	1	1	1
Silversmiths . . . . .	6	4	4	4
Candle Factories . . . . .	40	—	—	—
Saw-mills . . . . .	3	4	4	4
Total . . . . .	269	188	188	207

# COMARCA OF PUNTARENAS.

Factories and Shops.	1883.	1888.	1890.	1892.
Blacksmith Shops . . . . .	5	9	9	9
Gunsmiths . . . . .	2	2	2	2
Saw-mills . . . . .	1	1	1	1
Brick-yards . . . . .	1	2	2	2
Limekilns . . . . .	1	1	1	1
Ice Houses . . . . .	1	1	1	1
Coffee-mills . . . . .	7	—	—	—
Sugar-mills . . . . .	11	19	19	19
Carpenter Shops . . . . .	8	15	15	15
Tailoring . . . . .	11	7	7	7
Tanneries . . . . .	1	—	—	—
Shoe Factories . . . . .	6	8	8	8
Barber Shops . . . . .	2	6	6	6
Bakeries . . . . .	3	7	7	7
Drug Stores . . . . .	5	5	5	5
Candle Factories . . . . .	1	—	—	—
Silversmiths . . . . .	3	3	3	3
Furniture makers . . . . .	—	2	2	2
Dyeing . . . . .	—	1	1	1
Total . . . . .	69	89	89	89

# PROVINCE OF CARTAGO.

FACTORIES AND SHOPS.	1883.	1888.	1890.	1892.
Blacksmith Shops . . . .	4	5	5	5
Saw-mills . . . . .	9	9	9	9
Printing . . . . .	2	1	1	—
Brick-yards . . . . .	54	34	34	34
Limekilns . . . . .	6	10	10	10
Coffee-mills . . . . .	1	16	16	16
Sugar-mills . . . . .	41	55	55	55
Carpenter Shops . . . .	5	8	8	8
Breweries . . . . .	1	1	1	1
Tailoring . . . . .	4	10	10	10
Tanneries . . . . .	7	3	3	3
Shoe Factories . . . . .	7	9	9	9
Barber Shops . . . . .	5	3	3	3
Saddle-makers . . . . .	2	5	5	5
Bakeries . . . . .	2	3	3	3
Drug-Stores . . . . .	8	8	8	8
Dyeing . . . . .	1	0	0	0
Candle-makers . . . . .	5	—	—	—
Watchmakers . . . . .	3	4	4	4
Silversmiths . . . . .	3	4	4	4
Soap Factories . . . . .	—	1	1	1
Sculpturing . . . . .	—	1	1	1
Furniture-makers . . . .	—	3	3	3
Foundries . . . . .	—	—	—	1
Total . . . . .	169	193	193	193

## The Government.

Since the proclamation issued in Guatemala on the memorable 15th of September, 1821, declaring the absolute independence of Central America, Costa Rica has remained a representative Republic. The present Constitution was issued on the 7th of December, 1871. It guarantees notability of citizens and equality before the law. It asserts the right to hold property, permits liberty of thought, press and speech. The enjoyment of all these and other civil rights applies to foreigners of all nations as well as the Costa Ricans. The whole Government is constructed more or less accurately, on the model of the United States.



The political struggles are at times threatened with corruption, and finances are often as badly handled as by their more advanced contemporaries—the New York and Chicago aldermen. Such sins, however, have prevailed everywhere, and are not confined to Costa Rica alone. The elections are on the whole characterized by calmness. There are no clearly-defined opposing parties, hence the conflict is usually more personal, but the terminations are quiet and peaceful.

\* An important item to foreigners is Article 12 of the Constitution, which says: "Foreigners enjoy within the Territory of the Nation all the civil rights of the citizen. They can practice industries and conduct their business, possess real estate, buy and sell it, navigate along the coasts or in the rivers, practice their religion, serve as witnesses, and marry according to law. They are not obliged to become naturalized, or to pay unreasonable contributions."

These privileges have always been faithfully granted. The Government is ever ready to support foreign efforts to develop the country, and takes a warm interest in all new ventures introduced with honest objects.

## Occupations.

The individual trades, professions and numerous occupations are given in the table below. The significant fact about this table is the extremely small number of skilled workmen in proportion to the total population. Even many workmen here enumerated are unskilled and incapable. The professional men, particularly the doctors, are entirely insufficient. There is about one doctor to 8,000 people, while in the United States we have one to every 800 of the population.

This is perhaps an excellent argument in favor of the general healthfulness of the country, but more skilled medical men would find a field for really good scientific practice. There is here, indeed, a grand opportunity for Americans, all

of whom the natives specially admire. Energetic tradesmen and scientific workingmen with a small capital are certain to find good openings, and lucrative practices are open to bright men of all professions.

#### OCCUPATIONS.

Apothecaries . . . . .	44	Leather-dressers . . . . .	51
Architects . . . . .	5	Linen ironers . . . . .	890
Bachelors of Arts . . . . .	193	Marble-cutters . . . . .	6
Bakers . . . . .	66	Masons and stonecut-	
Barbers . . . . .	67	ters . . . . .	427
Beltmakers . . . . .	18	Matmakers . . . . .	77
Bookbinders . . . . .	10	Mattress-makers . . . . .	12
Brewers . . . . .	5	Mechanics . . . . .	12
Butchers . . . . .	268	Merchants, commission	
Carpenters and Cabi-		men and bankers . . . . .	660
netmakers . . . . .	871	Milliners . . . . .	19
Cartdrivers . . . . .	1,924	Mine-owners . . . . .	3
Cigarmakers (males 38,		Muleteers . . . . .	123
females, 488) . . . . .	526	Musicians . . . . .	211
Clergymen . . . . .	119	Nurses . . . . .	55
Clerks, etc . . . . .	703	Painters . . . . .	229
Coachmen . . . . .	29	Photographers . . . . .	6
Confectionists and Pas-		Preceptors . . . . .	366
try Cooks . . . . .	151	Printers . . . . .	46
Cooks (males 30, fe-		Public employes . . . . .	820
males 3,917) . . . . .	3,947	Sailors . . . . .	70
Day laborers . . . . .	18,278	Sculptors . . . . .	4
Dentists . . . . .	7	Seamstresses . . . . .	5,334
Divers . . . . .	20	Servants (males 258,	
Doctors . . . . .	25	females 112) . . . . .	370
Dyers . . . . .	7	Shoemakers . . . . .	358
Engineers . . . . .	13	Silversmiths . . . . .	22
Farmers and landhold-		Smiths . . . . .	5
ers . . . . .	7,479	Soapmakers (males 30,	
Governesses . . . . .	360	females 112) . . . . .	142
Gunsmiths . . . . .	10	Soldiers in service . . . . .	505
Hatmakers (males 219,		Students . . . . .	17,174
females 292) . . . . .	511	Surveyors . . . . .	28
Horticulturists . . . . .	8	Tailors . . . . .	415
Hotelkeepers . . . . .	42	Tinners . . . . .	22
Jewelers . . . . .	12	Washerwomen . . . . .	5,300
Lawyers . . . . .	78	Woodcutters . . . . .	214

## Amusements.

Costa Ricans have made it possible to mingle work and pleasure in the most delightful way. In the cities, amusement is often considered more important than business, and there the means of pleasurable recreation are abundant. In San Jose has been constructed a modern theater that is not equaled in Central America, and its grandeur in some respects rivals New York theaters. Many other theaters and places of amusement are scattered over the country wherever there is a sufficient population to support them. The natives are also patrons of fine art, and love music above all. There is a piano in nearly every well-regulated home, and great numbers gather daily in the parks to listen to excellent music given by the military bands. There is, indeed, an air of music, a vein of poetry, an element of romance and an effervescence of sentiment wherever young people assemble, and the dark-eyed maidens are simply irresistible.

## Means of Communication.\*

### Avenues of Transportation and Approximate Distances.

#### FROM SAN JOSE TO 115 POINTS IN COSTA RICA.

SAN JOSE.	MILES.	ROADS.
Escazu	4½	Cart road
Santa Ana	7½	" "
Pacaca	14	" "
Chile	18	" "
San Pablo	30	Saddle road
Santiago del Puriscal	24	Cart road
Candelarita	30	Saddle road
La Vibora	27	" "
Sapotal	27	" "

\*For more detailed information on this subject apply to, or address **Dr. Richard Villafranca**, at the Cotton States and International Exposition until December 31, 1895; and thereafter at **TYPOGRAPHIC DEPARTMENT, Sackett & Wilhelms Lithographing Co., 110 Fifth Ave., New York.**

AVENUES OF TRANSPORTATION AND APPROXIMATE  
DISTANCES—*Continued.*

SAN JOSE.	MILES.	ROADS.
Curridabat	3	Railroad and cart road
Guadalupe	3	Cart road
San Vicente	3	" "
San Isidro	6	" "
San Jeronimo	7½	" "
La Palma	12	" "
La Laguna	15	" "
La Boca del Infierno	18	" "
Carrillo	25½	" "
Limon	98	Railroad
Boca del Toro	160	Navigation from Limon
Alajuelita	3	Cart road
Desamparados	3	" "
Tres Rios	7	Railroad and cart road
Cartago	12	" " "
San Miguel	4¼	Cart road
San Cristobal	12	" "
Los Frailes	18	Saddle road
Las Cruces	18	" "
Bustamante	21	" "
San Pablo Dota	27	Cart road
San Marcos	30	" "
Santa Maria	36	" "
Nueva Santa Maria	60	Saddle road
Paquita	75	" "
Carrala	123	" "
Boruca	120	" "
Buenos Aires	120	" "
Aserri	6	Cart road
Tabarcia	9	" "
San Ignacio	12	Saddle road
Guaitil	18	" "
Sabanilla de Aserri	24	" "
Pirris de Aserri	30	" "
La Laguna de Aserri	10½	" "
Rosario	12	" "
Cangrejal	24	Cart road
Cartago	12	Railroad and cart road
Paraíso	16½	" " "
Juan Vinas	27	" " "
Orosi	18	Cart road
Agua Caliente	15	Tramway and cart road
Guatuzo	25½	Cart road
Tucurrique	36	" "
Chirripo	42	Saddle road
San Miguel	27	" "
Turrialba	33	Cart road
Cot	18	" "
San Cristobal	24	" "
Santo Domingo	3½	Railroad and cart road
Heredia	6	" " "
San Joaquin	9	" " "

AVENUES OF TRANSPORTATION AND APPROXIMATE  
DISTANCES—*Continued.*

SAN JOSE.	MILES.	ROADS.
Villa Barba	9	Cart road
Carrizal	12	" "
Tambor	15	" "
Vara Blanca	30	" "
San Miguel	42	Saddle road
San Ramon	51	" "
La Virgen	54	" "
Chilamate	60	" "
Muelle de Sarapique	66	" "
Hacienda Vieja	72	Navigation
Trinidad	111	" "
Villa Santa Barbarra	12	Cart road
Alajuela	12	Railroad and cart road
San Pedro de la Calabaza	18	Cart road
Sabanilla	18	" "
San Rafael	19½	" "
Los ojos de agua	18	" "
Grecia	24	" "
San Roque	27	" "
Los Angeles	27	" "
San Jeronimo	30	" "
La Barranca	25½	" "
Naranjo	33	" "
Sarcero	40½	" "
Tapezco	43½	" "
Zapote	45	" "
Buena Vista	48	" "
La Cuesta Vieja	54	" "
Peje	60	" "
Muelle de San Carlos	69	Saddle road
Estero Grande	78	Navigation
Boca de San Carlos	123	" "
Boca del Rio Frio (de Peje)		Saddle road
Sarchi	30	Cart road
Sahinos	42	" "
Atenas	24	" "
San Mateo	36	" "
Santo Domingo	39	" "
Esparta	47	" "
Puntarenas	60	Railroad and cart road
Bebedero	132	Navigation
Las Cañas	139	Cart road
Bagaces	147	" "
Liberia	165	" "
La Cruz (Front. Nicaragua)	201	Saddle road
Filadelfia	177	Cart road
Palmira	180	" "
Belen	183	" "
Santa Cruz	198	" "
Veintisiete de Abril	209	" "
Tempaté	213	" "
Santa Rosa	220	" "
Nicoya	213	" "

## Railroads.

The railway system of Costa Rica is being rapidly improved, and encouraged by the Government. All the lines will be the property of the State at the expiration of the time of each charter grant—99 years. The principal road now operating is the Atlantic Railroad, of which the Government owns one-third of the stock ; an English syndicate, which now operates the road, controls the balance.

The tracks of this road extend from the port of Limon on the Atlantic, westerly to Alajuela—a distance of 147 ½ miles. It has a branch which starts from a point about forty miles west of Port Limon, extends southward, and then westward until it reaches Carrillo, a place at the foot of the Irazu Mountain.

The Pacific Railroad starts from Puntarenas on the Pacific Ocean, and extends eastward to the city of Esparta at the foot of the Aguacate Mountains, a distance of about fourteen miles. This is to be extended to Alajuela (30 miles). Here the two roads will meet, forming a complete Trans-Costa Rican railroad with many new, and nearly all modern facilities. This will, indeed, be a most beautiful and picturesque line, winding among towering mountains, and ploughing through the dense, tropical forests, from the Atlantic to the Pacific, in less than twenty-four hours.

Alajuela is already connected with Heredia, which is also connected with Cartago, by means of a railroad spread over a distance of twenty-seven miles. This passes through San José, the capital of the country, and is an important part of the general system.

Many new roads and branches have been proposed, some of which will be ready in a few years. One will have its tracks extending from a point where the San José & Carrillo Railroad crosses the Jimenez River and the Rio Frio, which empties into the San Juan River. There has been a long felt

want of prompt communication between Port Limon and the upper part of the San Juan country, and this railroad will furnish it. The far-reaching value of the road can hardly be appreciated by those not thoroughly familiar with the enormous extent and unlimited fertility of the land, previously neglected because of imperfect transportation. The road, further more, establishes every communication with the neighboring Republic Nicaragua.

Aside from the railroads there are, in Costa Rica, very easy means of communication by way of paths, wagon roads and water ways. The following table shows the avenues of transportation by land, and a glance at the map will at once, indicate the many convenient water routes :

## Telegraph System.

All centers of population in the Republic are connected by wire with each other, and joined to the neighboring nations and the world in general by a most complete telegraph system. Costa Rica was first among Central American countries to have a telegraph service, and now has the cheapest rates ; a rate which is less than the prevailing price of wire service in the United States. Only twenty cents is charged for a message sent to any part of Central America. We append here a list of the principal telegraph offices.

### TELEGRAPH OFFICES.

San Jose	Barba	Liberia
Asserri	Santo Domingo	Bebedero
Desamparados	San Antonio de Belen	Bagaces
Escasu	Alajuelita	Guasimal
Santa Ana	Grecia	La Palma
Pacaca	Naranjo	Las Canas
Puriscal	San Ramon	Santa Cruz
Cartago	Palmares	Filadelfia
Juan Vinas	Atenas	Nicoya
Paraiso	San Mateo	La Cruz
La Union	Puntarenas	San Rafael
Heredia	Esparta	Santa Barbara

## Telephone.

The capital—San Jose—and the principal cities, have now a well-established telephone service. The Government entered into a contract with an American company and its extension throughout the whole Republic will soon be realized.

## The Postal Service.

### MAILS.

The mail service of the Republic is very good. Costa Rica is a member of the Universal Postal Union, and in 1890, there was completed a system of parcel delivery through the mails to the United States, which has become a very important aid to commerce, and a most valuable convenience to citizens of both countries. The local service is modern and effective, and the foreign mails are sent and received as often as the present steamship lines call.

There are nearly 100 post offices scattered over the Republic which in the year 1890-91 handled 2,101,428 pieces. Below is a list of the most important offices :

### LOCAL POST OFFICES.

San Jose	Puntarenas	Old Harbor
Escazu	Atenas	San Bernardo
Asserri	San Ramon	Terrabz.
San Isidro	Naranjo	Boruca
Puriscal	Sar. Carlos	Esparta
Alajuela	Quemados	La Union
Guaytil	Ćarrillo	Sta Maria Dota
Juan Viñas	Limon	Jimenez
Santo Domingo	Bebedero	Reventazon
Santa Barbara	Liberia	Siquirres
San Rafael	Las Cañas	Matina
San Antonio	Sardinal	Palmares
Cartago	Rivas	San Mateo
Heredia	Sta Cruz	Desmonte
Alajuela	Nicoya	La Cruz
Grecia	Humo	San Joaquin
San Pedro	Ballena	Paraíso

The Government is using every reasonable endeavor to improve the means of communication, but the foregoing chapter clearly shows that the system is already well established ; and Costa Rica can easily boast of its railroads, telegraphs, telephones and mails.



## The Inter-Oceanic Canals of the Future.

The Costa Rica-Nicaragua and the Panama Canals are such important problems that the nations of the earth must, sooner or later, combine in determined efforts to complete them. Just at present the Nicaragua is in a fair way to be finished at an early date. All Costa Ricans hope for its successful construction by Americans and with an American capital, for they are bitterly opposed to the grasping methods of the European nations. An intra-continental communication between the Atlantic and Pacific Oceans is of such boundless importance to the world, that either one or both of these canals is an absolute necessity.

Costa Rica, occupying almost exactly the territory between the two canals, with its shores washed by the two great oceans, will ere long reap the benefit of such an unparalleled natural position; this will be the final event which shall place Costa Rica among the most privileged of nations, and will make of her the "Gem of American Republics."

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## Commerce.\*

The onward march of commerce is far in advance of the increasing population. In 1850 the value of exportations and importations was about equal, and were each figured at about a million dollars. In 1893 Costa Rica exported products to the value of nearly ten million dollars and imported nearly six million dollars worth of goods. To understand the phenomenal development of commerce since 1883, we offer the following table which tells its own story.

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\*For more detailed information on this subject apply to, or address **Mr. Richard Villafranca**, at the Cotton States and International Exposition until December 31, 1895; and thereafter at **TYPOGRAPHIC DEPARTMENT**, Sackett & Wilhelms Lithographing Co. 110 Fifth Ave., New York.

Years.	Exportation.	Importation.	Surplus of Exportation.	Surplus of Importation.
1884	\$3,745,400	\$3,521,900	\$223,500	
1885	2,535,500	3,660,900		\$1,125,400
1886	2,257,600	3,537,600		1,280,000
1887	4,689,100	5,601,200		912,100
1888	4,052,300	5,201,900		1,149,600
1889	4,612,800	6,306,400		1,693,600
1890	6,664,700	6,615,400	49,300	
1891	6,116,800	8,351,000		2,234,200
1892	4,725,900	53,89,700		663,800
1893	4,294,200	5,833,400		1,539,200
	<hr/> \$43,694,300	<hr/> \$54,019,400	<hr/> \$272,800	<hr/> \$10,597,900

The trade, however, has been mostly with Europe. It behooves American merchants to study this question carefully. It can and must be changed very soon, because the maxim "America for Americans" is becoming more and more a deep seated sentiment, and furthermore, it is not reasonable that merchants should send to the Old World for goods, and await their arrival for a period of months, when the American markets are more easy of access, while the means of communication are daily improving. The principal obstacle to American trade has been the higher rate of interest, shorter terms of credit and badly packed goods.

The Europeans offer greater inducements to secure the business by making special goods for Spanish American markets, and keeping representatives moving over the territory; matters which merchants of the United States have neglected.

IMPORTED AND EXPORTED.—The primitive condition of industry in Costa Rica is clearly shown by the following table, indicating the extensive importation of articles, most of which actually thrive better in Costa Rica, when properly cultivated, than elsewhere. It would take but a few years of scientific study and experiment to not only cultivate enough of these articles for the home market, but for profitable exportation.

ARTICLES THAT ARE PRODUCED IN THE COUNTRY, BUT HAVE BEEN IMPORTED.

YEARS.	Corn.	Beans.	Rice.	Sugar.	Bird Seed.	Starch.	Oats.	Cocoa.	Onions.	Peas.	Crackers.	Hay.	Flour.
1893	K 1,473,751	274,915	962,317	430,977	6,580	21,863	12,105	105,967	1,894	7,179	92,905	12,418	3,946,620
\$	50,474	30,939	93,032	62,361	652	4,091	867	46,082	207	1,455	8,020	847	289,502
1891	K 2,175,020	279,792	1,105,088	1,218,827	7,364	104,042	40,496	159,335	8,238	10,782	86,326	39,558	3,777,190
\$	92,977	32,147	109,847	167,275	831	14,229	4,020	71,652	985	2,726	6,332	1,502	227,741
1890	K 2,282,969	262,436	1,097,682	628,170	7,218	46,254	13,014	127,381	1,833	6,886	97,329	24,111	3,880,510
\$	98,460	31,127	109,436	85,896	723	10,201	1,180	51,949	207	1,542	7,221	1,305	271,757
1889	K 211,724	298,398	723,693	562,328	5,232	58,125	6,997	123,892	9,832	1,828	89,328	11,049	2,987,758
\$	8,687	31,127	73,125	83,125	501	14,823	728	31,149	749	262	8,742	492	219,150
1888	K 180,464	228,377	684,729	500,970	5,664	59,228	6,657	109,121	11,351	2,176	84,702	40,112	2,355,181
\$	3,566	24,832	68,316	81,219	603	15,127	640	26,991	983	331	8,553	1,336	167,319
1887	K 647,232	274,896	542,733	87,007	5,148	17,127	28,589	69,766	—	5,589	47,986	50,320	1,990,786
\$	18,717	27,722	44,395	15,794	508	5,370	3,616	32,454	—	680	5,242	1,512	125,153
1886	K 15,583	34,009	80,759	68,198	4,394	3,682	50,430	32,694	6,927	2,746	31,218	53,270	2,224,647
\$	504	3,039	8,244	11,098	481	420	3,291	13,971	789	417	4,866	1,328	283,064
1885	K 10,696	23,415	277,097	246,502	7,201	7,710	24,748	46,114	25,109	4,045	27,976	12,141	2,161,763
\$	106	1,170	13,913	22,185	432	386	1,237	9,574	1,255	202	2,237	121	129,693
1884	K 41,992	19,923	304,354	357,617	6,438	15,641	198,399	88,240	—	11,666	58,301	168,879	2,644,525
\$	429	996	15,221	36,309	398	753	9,731	18,520	—	1,407	4,852	1,889	158,972
1883	K 10,696	23,415	277,097	246,502	7,201	27,748	7,710	46,114	25,109	4,045	27,967	12,141	2,161,763
\$	107	1,170	13,913	22,185	432	1,237	386	9,557	1,256	202	2,238	121	129,693

ARTICLES THAT ARE PRODUCED IN THE COUNTRY BUT HAVE BEEN IMPORTED. — *Continued.*

YEARS.	Vegetables.	Lard.	Butter.	Corn Flour.	Oysters.	Cheese.	Salt.	Tea.	Wheat.	Tobacco.	Gatlic.	Arvejas.
1893	K13,714 \$ 941	911,400 82,427	38,662 9,520	2,648 412	5,057 628	33,874 11,939	488,700 10,513	2,707 1,037	518,691 21,418	311,256 119,767	—	—
1891	K39,529 \$2,426	497,961 53,584	44,555 11,505	8,601 679	10,201 1,881	73,447 20,147	573,954 16,857	4,272 2,266	1,651,521 55,891	344,716 137,613	—	—
1890	K46,450 \$ 2,900	755,229 79,998	38,328 12,119	10,635 2,127	11,285 1,300	69,376 20,160	638,900 16,032	4,050 2,300	622,439 27,837	201,604 125,008	—	—
1889	K51,328 \$ 2,212	272,328 42,128	— —	8,928 1,325	4,201 572	58,928 17,897	392,845 9,627	2,382 1,628	670,567 26,822	286,974 132,291	323 58	612 47
1888	K59,952 \$ 2,331	253,641 39,082	25,125 11,317	6,764 1,286	3,930 531	50,317 16,469	385,768 8,272	2,844 2,203	286,197 9,507	153,167 84,282	258 56	417 39
1887	K46,272 \$ 2,081	238,023 47,705	19,907 8,409	9,977 1,949	7,780 786	30,110 11,064	131,220 2,695	2,067 2,044	1,806,767 72,270	180,298 91,207	— —	163 18
1886	K 8,210 \$ 349	73,006 8,091	10,215 5,189	4,760 967	1,720 221	13,610 5,825	224,172 6,661	2,928 1,803	309,328 15,898	200,723 95,818	— —	— —
1885	K — \$ —	40,252 6,431	17,751 2,843	9,770 684	3,909 777	15,918 1,911	183,883 16,899	1,282 423	1,814 46	273,267 73,782	— —	— —
1884	K — \$ —	95,804 13,633	24,982 7,629	23,009 1,642	8,471 1,492	20,228 4,443	305,678 6,276	2,421 815	— —	15,414 4,206	869 42	— —
1883	K — \$ —	40,252 6,431	17,751 2,843	16,297 6,518	3,909 777	15,918 1,912	183,883 16,899	1,282 423	1,814 46	282,166 77,716	2,427 102	— —

## Rates of Exchange.

In the following table of exchange rates it will be seen that there has been a great and steady increase in recent years. This is due to the increased volume of importation and the payments on the national debt. It is, however, extremely favorable for intending settlers, since an American dollar in gold is worth at present about two and a half in the native currency.

### EXCHANGE ON LONDON AT NINETY DAYS' SIGHT.

Years.	Maximum Rate of Exchange.	Minimum Rate of Exchange.	Average Rate.
1869 . . . .	10 per cent.	5 per cent.	7 per cent.
1870 . . . .	15 "	5 "	9 "
1871 . . . .	10 "	7 "	8 "
1872 . . . .	14 "	8 "	12 "
1873 . . . .	14 "	8 "	11 "
1874 . . . .	15 "	9 "	12 "
1875 . . . .	15 "	8 "	12 "
1876 . . . .	18 "	12 "	15 "
1877 . . . .	10 "	5 "	8 "
1878 . . . .	12 "	5 "	9 "
1879 . . . .	16 "	5 "	12 "
1880 . . . .	19 "	12 "	15 "
1881 . . . .	19 "	15½ "	17 "
1882 . . . .	24 "	10 "	18 "
1883 . . . .	24 "	10 "	17 "
1884 . . . .	25 "	9 "	18 "
1885 . . . .	35 "	24 "	30 "
1886 . . . .	54 "	34 "	42 "
1887 . . . .	36 "	29 "	33 "
1888 . . . .	52 "	40 "	41 "
1889 . . . .	56 "	44 "	51 "
1890 . . . .	58 "	42 "	51 "
1891 . . . .	65 "	50 "	58 "
1892 . . . .	116 "	64 "	95 "
1893 . . . .	156 "	96 "	124 "

Years.	National Bank Paper Money Issued.	Value of Importation in Gold.	Value of Exportation in Gold.	Average Rate in Exchange.
1883 . .	\$ 474,332	\$2,166,000	\$2,163,700	17 per cent.
1884 . .	752,828	3,521,900	3,745,400	18    "
1885 . .	1,365,178	3,660,900	2,535,500	30    "
1886 . .	1,295,866	3,537,600	2,257,600	42    "
1887 . .	2,059,927	5,601,200	4,689,100	33    "
1888 . .	2,462,844	5,201,900	4,052,300	41    "
1889 . .	2,999,438	6,306,400	4,612,800	51    "
1890 . .	3,832,452	6,615,400	6,664,700	51    "
1891 . .	4,074,728	8,351,000	6,116,800	58    "
1892 . .	3,366,686	5,389,700	4,725,900	95    "
1893 . .	4,186,267	5,833,400	4,294,200	124   "

## Natural Resources.\*

### Productions.

The different altitudes of land and the consequent variety of temperature, the numerous rivers, the richness of the soil, the abundance of rain and sunshine, and the short distance that separates the Atlantic and Pacific Oceans, all contribute to the extraordinary diversity of the vegetable products found in Costa Rica. Here, growing with equal facility, are found the fruits and the plants of both the Torrid and Temperate Zones.

The mineral wealth that the country contains is so remarkable, the first discoverers of this territory bestowed upon it the name Costa Rica (Rich Coast), because of the rich deposits of mineral matter found there. Equally noticeable are its vast fauna, the multitude of wild game, and the countless birds of rare plumage and melodious song.

The species of birds already known amount to 692, but the names of these, and most of the animals, we shall omit for want of space in which to insert so numerous a list.

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\* For more detailed information on this subject apply to, or address **Dr. Richard Villafranca**, at the Cotton States and International Exposition until December 31, 1895; and thereafter at **TYPOGRAPHIC DEPARTMENT**, Sackett & Wilhelms Lithographing Co., 110 Fifth Ave., New York.

THE FOLLOWING SCHEDULE GIVES THE NAME AND LOCATION OF THE PRINCIPAL MINES OF  
THE REPUBLIC IN 1892.

NAME.	Counties.	Locations.	Kind of Metal.
La Trinidad	Esparta	Upper end of Ciruelitas River	Gold and Silver.
Sacra Familia	Alajuela	Mount of Aguacate	Gold and Silver.
La Union	Puntarenas	Bank of Seco River	Gold and Silver.
La Minita	Alajuela	Mount of Aguacate	Gold and Silver.
Mina de los Castro	Alajuela	Corralillo	Gold and Silver.
San Rafael	Alajuela	Corralillo	Gold and Silver.
Mina de los Oreamuno	Alajuela	Corralillo	Gold and Silver.
Quebrada Honda	Alajuela	Quebrada Honda	Gold and Silver.
Machuca	Alajuela	Corralillo	Gold and Silver.
Trinidad del Aguacate	Alajuela	Corralillo	Gold and Silver.
Peña Grande	San Ramon	Hill of San Ramon	Gold and Silver.
Mina de Acosta	San Ramon	Banks of Jesus River	Gold and Silver.
Las Concavas	Cartago	Banks of Agua-Caliente River	Copper.
Palmares	San Ramon	Cordillera of Aguacate	Gold, Silver and Lead.
Mancuerna	Sardinal	Sardinal Coast	Copper.
Mata Palo	Sardinal	Sardinal Coast	Copper.
Puerta de Palacio	Sardinal	Sardinal Coast	Copper.
Hoja Chigues	Sardinal	Sardinal Coast	Copper.
Chapernal	Sardinal	Sardinal Coast	Copper.

## Minerals.

There are also found abundant deposits of quartz crystal in San Ramon; coal in Puriscal, Desamparados, Pacuare and Talamanca; alabaster and alabastrita in Cartago; granite, fine and ordinary, in Cartago and San Ramon; white marble in San Ramon, San Marcos and San Lucas; fine and ordinary clay in Cartago, Alajuela, San Marcos and Mora; alum in Cartago; fine and ordinary slate in Mora, and jasper in San Marcos. Many other minerals like silex, onyx, tophus, plaster, lapidary stone, sulphur, mercury, pumice stone, tripoli earth, ochres, fine and ordinary, etc., have also been discovered in different sections of the country.

The mining industry of Costa Rica is lying dormant, only for the want of willing hands to awaken it into living, luxurious existence. It is even now struggling through all sorts of difficulties, for the reasons given in all industries—want of labor, proper machinery, etc. It needs only these, and courage to resume the rank held by the country in this respect when it was discovered by Christopher Columbus. “Up to 1890, the gold mines of Aguacate alone had yielded about \$7,000,000.”

## Mineral Springs.

Almost everywhere throughout the country mineral and thermal waters are found. The most celebrated are those of Agua Caliente, about five miles from the city of Cartago, for the exploration of which a stock company has been formed under the name of “Bella-Vista Company.” This society has has erected a magnificent building, which fills all the requirements of a bathing establishment responding to modern exigencies, and of a hotel affording all desirable comforts to invalids or travelers. The analysis of the water of Agua Caliente made by the chemist, Dr. C. F. Chandler, of Columbia College, New York, in 1887, gave the following results:



Sodium chloride . . . . .	61.2922
Bicarb. lithium . . . . .	Traces
“ sodium . . . . .	15.1568
“ magnesium . . . . .	13.0165
“ calcium . . . . .	56.0627
“ barium . . . . .	0.2624
“ strontium . . . . .	Traces
“ iron . . . . .	1.3588
“ copper . . . . .	Traces
“ manganese . . . . .	Traces
Sulphate potassium . . . . .	2.5775
“ sodium . . . . .	37.7258
Phosphate sodium . . . . .	0.1108
Biborate “ . . . . .	1.7669
Arsenite “ . . . . .	Traces
Alumina “ . . . . .	0.1166
Silica “ . . . . .	3.6157
Organic matter . . . . .	Traces
<hr/>	
Total . . . . .	193.0627

(Signed) C. F. CHANDLER, Ph. D.

The figures given represent grains, and the analysis was made from the quantity of water to a gallon of the United States, which contains 231 cubic inches. There exist mineral springs in many other localities. Those most resembling Agua Caliente are those of Orosi, in the same neighborhood as the former, and those of Salitral, near San Jose.

## Useful and Ornamental Woods.

Rare qualities of useful woods are found in every part of Costa Rica. For hardness, unique shades and durability, these rival the world, and as the resources of the country are developed, the avenues of transportation improved and the railroads extended, the woods will yield a golden harvest.

The list given below comprises only the more important trees known at present, and the crosses indicate the districts in which they thrive.

BUILDING AND CABINET WOODS.	San José.	Escasí.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramón.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Bárbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Arca . . . . .	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	+	+	.	.	.	+	.	
Almendra . . . . .	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Aguacatillo . . . . .	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
“ blanco . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Albahaguilla,* . . . . .	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	
Aguacate . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Anonillo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Amarillo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	
Azaharillo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Brasil . . . . .	.	+	.	.	+	+	+	+	+	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
“ nacar . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Balsa . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Balsamo negro . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Batea . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Corteza amarilla * . . . .	.	+	.	.	.	.	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
“ blanca . . . . .	.	+	.	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
“ negra * . . . . .	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
“ de venado . . . . .	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cortés . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	
Cortéza . . . . .	.	+	+	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	
Cedro amargo * . . . . .	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
“ dulce * . . . . .	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
“ pachote . . . . .	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Caoba * . . . . .	.	+	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
“ nacar * . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cristobal * . . . . .	.	+	.	+	+	+	+	+	+	+	+	+	+	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	
Cocobola * . . . . .	.	+	+	.	+	+	+	+	+	+	+	+	+	.	.	.	+	.	.	.	+	+	+	+	+	+	+	+	
“ ñambar * . . . . .	.	+	.	.	.	+	.	.	.	.	.	+	.	.	.	.	+	.	.	.	+	+	+	+	+	+	+	+	
Chaparro . . . . .	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Chirraca * . . . . .	.	+	.	.	+	.	+	+	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	
Cucaracho . . . . .	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cerillo . . . . .	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Copalchisillo . . . . .	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cherré * . . . . .	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cocora . . . . .	.	.	.	.	+	.	.	.	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cascarillo . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Coquito . . . . .	.	.	.	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	
Cacique . . . . .	.	.	.	.	.	+	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Cacho de venado . . . . .	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cachimbo . . . . .	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	
Canela * . . . . .	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	.	.	.	.	
Come negro . . . . .	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Copalchí . . . . .	.	.	.	.	.	.	.	+	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chancho . . . . .	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	
Capulin . . . . .	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	
Chilamate . . . . .	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Campana . . . . .	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	
Carboncillo * . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	+	.	.	.	.	.	+	+	.	.	.	.	

\*Cabinet woods.

BUILDING AND CABINET  
WOODS—Continued.

	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cafias.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Candelilla													+																
Caragra													+																
Cuerecillo													+			+	+												
Chilillo																		+											
Curá																			+	+									
Cerro																			+	+									
Culantrillo																			+	+									
Chaperno																				+									
Carao macho																					+								
Ceiba																						+				+	+		
Caimito																							+						
Cuajada																												+	
Danto		+				+	+	+	+	+			+			+	+		+								+		
“ amarillo										+			+															+	
“ blanco													+																
Encino		+						+					+						+	+									
Espabey									+			+								+	+		+						
Espino Colorado													+																
“ agudo													+																
“ blanco																		+											+
Estaquilla																		+											
Ebano																						+							
Frijolillo																							+						
Guapinol		+			+	+	+	+														+							
Guayabo *		+					+						+																
Guayabillo *		+			+		+	+		+			+				+	+	+	+									
Guacimo *		+					+						+					+	+	+		+							
Guachipelin		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Guanacaste				+	+	+					+											+					+	+	+
Guayacan *					+						+	+										+	+	+	+	+	+	+	+
“ blanco																						+							
Granadillo*							+	+														+		+		+	+	+	+
Guiscoyol							+																+			+	+	+	+
Genisaro								+																			+		
Guaitil																							+	+					
Golondrina																													+
Haya *													+									+							
Huitilimon													+																
Huitimonte																			+										
Hinchador																				+									
Ira colorado		+	+	+	+	+	+	+					+			+	+	+	+										
“ blanco		+		+	+	+	+	+		+				+							+								
“ amarillo		+	+	+	+	+	+	+					+	+															
“ rosa		+	+	+	+	+	+	+	+	+			+	+	+	+	+	+											
“ mangle							+	+	+	+						+		+											
Jaúl																					+								
Jocote-fraile																										+			
Lechilla		+					+																				+		

\*Cabinet woods.

BUILDING AND CABINET  
WOODS—Continued.

BUILDING AND CABINET WOODS—Continued.	San José.	Escalí.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Sania Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Lorito	+												++		+	+				+									
Lloron *	++	+			+						+		++		+	+				+									+
Lagarto				+					+	+				+													+		
Lagartillo-negro				+						+			+														+		
Loro-negro *					+																						+		
Laurel *							++			+	+	+	+				+		+		++		+	++	++	++		+	
Lantisco										+	+	+	+				+												+
Limoncillo																		++	++	+								+	
Llayo																					+								+
Maria	+		+					++	+		+	+														++	++	+	
Mariquita												+														++	++	+	
Madera negro	++	++	++	++	++	+			+		++	++	++					+		+	++	+	++			++	++	+	
“ hierro																											+		
Madero																								+					+
Madroño							+											+			+								+
Murta												+						++	++							++	++	++	++
Moral *												+						++	++					++	++	++	++	++	++
Melon *													+									++	++	++	++	++	++	++	++
Muñeca																					+					+			+
Marañon																										+			
Mangle																						+				++	++	++	++
Nispero *	+		+	++	++	++	++	+		+	+			+						+		+		++	++	++	++	++	++
Nance																			+							++	++	++	++
Naranjo de monte																						+							
Ojoche	+						+																			+			
Ocora																		+									+		
Pochote	++	++	++	+			++			++	++							+			+	+	+		++	++			
Piche		+																											
Pocora				+																									
Papa *										+																			
Palo frio												+																	
“ azul												+																	
Plomillo												+					+												
Pisco																	+												
Pappaturro negro *																				+			++	++		+			
Poroporo																											+		
Peñe de mico																										+			
Quizarrá	++	+		+		++	++	+	+	+					++	++	++	+											
“ negro *	++	+				+		+	+	+		+				+	+	+											
“ amarillo *	+	+				+		+	+	+	+	++	++	++	+		+												
“ barcino			+						+																				
“ cacho							+			+			+																
“ clavo							+		+					+				++	+										
Quizarracillo												+																	
Quina						+	++	++	+	+	+						+				+		+			+	+	+	+
Quebra hacha *												+						+	+	+	++	++	+	+	+	+	+	+	+
Roble *	+	+	+	+		+	++	++	++	++	++	+	+	+	+	+	+	+	+	+	++	++	++	++	++	++	++	++	++
“ negro	+					++	++	++	++	++	++	+	+	+	+	+	++	++	++	++	++	++	++	++	++	++	++	++	++

\*Cabinet woods.

**BUILDING AND CABINET  
Woods—Continued.**

BUILDING AND CABINET Woods—Continued.		San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Coló Dulce.	Limon.
Roble encina														+				+												
“ amarillo																						+								
Ronron *		+			+	+	+		+	+	+	+	+	+		+			+	+	+	+	+	+			+	+		
Recina		+																												
Raton				+		+			+																					
Sizzi*		++		+	+	+		++	+		++								++	++										
Sahino				+																										
Sanjuanillo *					++	++	+					+	+					+												
Santa Rosa						+																								
Surá								+						+																
Sierrilla														+																
Siete cueros																						++	+							
Sayo																								+						
Sandalo																											+		+	
Tirrá		+				+		++			+								++	++								+	+	
Tiquizzirri		+						+						+				+												
Tubús			+																											
Tucuico														+																
Treshuevos *														+																
Titora																			+											
Tempisque																						+								
Tamarindo																											+			
Uruca														+																
Vainilla		+						+					+																	
Venado						+																								
Venecunco																														
Yoz							+				+					+												+		
Yas											+		+				+		++											
Yuguilla													+				+													
Yambaro														+											+					
Zapotillo		+					+				+	+						++	++	+								+		
Zopilotillo																		++	++										+	
Zorrillo																													+	
Zapote mico																													+	

\*Cabinet woods.

## Medical and Oleaginous Plants.

These are principally the result of indigenous or spontaneous growth, a part of the local flora, and with scientific care and intelligent industry will always be a pregnant source of revenue.

The following list indicates the habitat of each plant mentioned :

MEDICAL PLANTS.	San José.	Escasú.	Desamparados.	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Acedera	+						+			+		+			+														
Achicoria	+			+			+			+				+	+													+	
Agrá	+						+									+													
Aguacate	+						+									+											+		
Ajenjo	+						+			+	+	+						+	+		+								
Ajo	+						+											+	+										
Albahaca	+						+										+				+							+	
Alcotan																						+							
Amapola	+		+				+						+					+	+		+		+						
Anisillo	+						+											+	+	+		+							
Anono	+						+						+					+	+										
Apasote	+		+				+			+		+	+					+	+		+			+			+		
Aromo	+						+						+	+				+					+						
Artemisa	+		+	+	+	+	+			+			+		+	+	+	+	+				+						
Azahar de monte						+									+														
Alacran										+				+															
Agarico blanco											+																		
“ negro											+																		
Azafran											+																		
Aloe											+																		
Aconito											+																		
Arnica											+	+																	
Albarrana														+								+	+						
Asta de ciervo															+														
Aceituna														+															
Azucena																		+											
Adormidera																			+										
Avellana																					+								
Anacahuitta																									+				
Alerajo																											+		
Albahaca de anis																											+		
Almendro																											+	+	
Balsamito						+			+	+			+					+						+		+	+		
Balsamo de Tolú																		+								+	+		
“ “ Perú																										+	+		
Barbasco													+					+											
Bodoque																													
Borraja	+							+	+	+	+	+	+	+	+	+	+	+	+								+	+	
Betivir			+																										
Balsamo de Brasil					+																								
Bitamo							+					+	+																
Belladona							+					+										+		+					
Beleño											+																		
Bijaroo																				+									
Berro																					+								
Bijagua																						+							
Balsamo negro																											+		
Bicho																											+		
Conchalagua	+					+				+			+	+	+	+	+	+	+	+			+						
Canela																													

MEDICAL PLANTS.  
Continued.

MEDICAL PLANTS. <i>Continued.</i>	San José.	Escañó.	Desamperados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Greña.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Hagaces.	Los Cañas.	Puntarenas.	Isapa.	Golfo Dulce.	Limon.
Caña agria	.	.	.	.	.	+	+	+	.	.	.	.	+	+	+	+	+	+	+	+	.	+	.	+	+	+	+	.	
“ fistula	.	.	.	.	.	+	.	.	.	.	.	.	+	+	.	.	.	.	.	.	+	.	.	+	+	+	+	.	
Capitaneja	.	.	.	.	.	+	.	+	.	.	.	.	+	.	.	.	.	.	.	.	+	+	.	+	.	.	.	.	
Carao	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	+	.	+	.	.	
Carboncillo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cardosanto	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
“ amarillo	+	.	.	.	.	+	+	.	.	+	.	.	+	+	.	.	+	+	+	+	.	.	.	.	.	.	.	.	
“ blanco	+	.	.	.	.	+	+	.	.	+	.	.	+	+	.	.	+	+	+	+	.	.	.	.	.	.	.	.	
Carvalla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Cedron	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	
Cerraja	.	.	.	.	.	.	.	+	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
China	.	+	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chipilin	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Chirraca	.	.	+	.	+	.	+	.	.	.	.	.	+	+	.	.	.	.	+	.	.	.	.	.	.	+	+	+	
Cola de alacran	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	+	+	.	+	+	
Contra yerba	.	.	.	.	.	.	+	+	.	+	.	.	+	.	.	.	+	.	.	.	.	+	+	.	.	+	+	+	
Copal	.	.	.	.	.	+	+	.	.	+	.	.	+	+	.	.	.	.	+	.	.	.	.	.	.	.	.	+	
Copalchi	.	+	+	.	.	.	.	.	+	+	+	+	+	+	.	.	.	.	+	+	+	+	.	+	.	.	.	+	
Copey	.	+	.	.	+	.	.	.	.	.	.	.	+	+	.	+	.	.	.	.	.	.	.	+	.	.	.	+	
Corralillo	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cucuhneca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	
Culantrillo	.	+	+	.	.	.	+	+	.	.	.	.	+	+	.	+	+	+	+	+	.	.	+	.	.	.	.	.	
Chicasquil	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Culantro coyote	.	+	.	.	.	.	+	.	.	.	.	.	.	.	+	+	.	+	+	.	.	.	.	.	.	.	.	.	
Cardon	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	
Cordoncillo	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Caraña	.	+	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	+	.	.	+	
Coloquintida	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	
Cebada	.	.	+	+	.	.	.	.	.	+	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	
Copaiba	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cerillo	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cedril	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Coco	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Cativo	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Coyol	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Capsico	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cornizuelo de centeno	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Contra veneno	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chan	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cuasia	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cuasquite	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Capitana	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chile de perro	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	
Camibar	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	+	+	+	
Cominillo	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cristalillo	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Caucho	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Calabazas	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chiquite	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chiquizá	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	
Cebadilla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	

MEDICAL PLANTS.  
*Continued.*

MEDICAL PLANTS. <i>Continued.</i>	San José.	Escasú.	Desamparados	Furiscal.	Aserri.	Mora.	Alajuela	San Ramón.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santa Domingo	Santa Barbara	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Corrimiento	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	++	.	.	.	.	.	.	.	.	.	.	.
Coroso	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+
Clavelina	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cuerno de ciervo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
Cero	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Coquillo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Chasmol	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Cebovejetal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Doradilla	+	.	.	.	++	++	++	.	.	+	++	++	++	++	++	++	++	++	++	.	.	.	+	.	.	.	.	.	.
Duerme muela	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dijital	.	.	.	.	.	.	.	.	.	.	++	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
Dormilona	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.
Dragon	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.
Eneldo	.	+	.	.	.	.	+	.	.	.	.	++	+	.	.	.	++	++	++	+	.	.	.	.	.	.	.	.	.
Escoba blanca	.	+	.	+	.	.	+	.	.	+	.	++	+	.	.	++	++	.	.	.	.	.	.	.	.	.	.	.	.
“ de castilla	.	+	.	.	.	.	+	.	.	.	.	++	+	.	.	++	++	.	.	.	.	+	.	.	.	.	.	.	.
“ negra	.	+	.	+	.	.	+	.	.	.	.	++	+	.	.	++	++	.	.	.	.	+	.	.	.	.	.	.	.
“ de Sn Pedro	.	+	.	.	.	.	+	.	.	.	.	++	+	.	.	++	++	.	.	.	.	+	.	.	.	.	.	+	.
Escobilla	.	.	.	.	.	.	+	.	.	.	+	+	+	.	.	.	+	.	++	+	.	.	.	.	+	+	.	.	.
Escorsoneda	.	.	.	.	.	+	.	.	.	++	++	.	.	.	.	.	.	.	.	.	.	+	.	+	+	+	.	.	.
Eucalipto	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.
Estoraque	.	+	.	++	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
Espinillo	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.
Estramonio	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	++	++	.	.	.	.	.	.	.	.	.	.
Frailecillo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.
Francesa	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florifundia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.
Frijolillo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Golondrina	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
Guaco	.	+	.	.	++	++	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	+
Guapinol	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	++	++	.	.
Guarumo	.	+	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	++	++	.	.
Guizaro	.	+	.	.	.	+	.	.	.	.	.	.	++	++	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.
Güitite	.	+	.	.	.	+	.	.	.	.	.	++	++	.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.
Garrapatilla	.	+	.	+	.	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guayaca	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Gomalaca	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guaria	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Granada	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
Güis-coyol	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.
Guacuco	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.
Gramma morada	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.
Gavilana	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Higurilla blanca	.	+	.	.	+	+	.	.	.	.	.	.	++	++	.	+	.	.	.	.	.	+	+	+	+	+	+	+	+
“ colorada	.	+	.	.	+	+	.	.	.	.	.	.	++	++	.	+	.	.	.	.	.	+	+	+	+	+	+	+	+
Higuero	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hinojo	.	+	.	.	.	++	.	.	.	.	.	.	++	++	++	++	++	++	++	++	.	.	.	.	.	.	+	.	.
Hoja del baso	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ de Estrella	.	.	.	.	.	.	++	++	+	.	.	+	.	.	.	.	++	++	.	.	.	.	.	.	.	.	.	.	.
“ del milagro	.	+	.	.	.	++	++	+	.	.	.	++	++	++	++	++	++	.	.	.	.	.	.	.	.	.	.	.	.



MEDICAL PLANTS.  
Continued.

MEDICAL PLANTS. Continued.	San José.	Escaló.	Desamperados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramón.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Parba.	Santo Domingo	Santa Bárbara.	San Rafael.	Carago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Pagaces.	Los Cafias.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Hoja de poro																	+												
“ sen	++					++							++			++	++			+									
“ del aire			++							+																			
“ “ guaco								+						+									+						
“ “ corazon											+																		
Hombre grande					++	++				++	++	++											+				+		
Hule				++																								+	
Hongos					++	++																					+	+	
Helecho macho				+							++	++									+								
Holatillo									+																				
Huitirre																							+						
Ipecacuana		++	++	++	++	+		+	+	++	++	++	++		++	++	++	++	++	++							+		
Itabo																		+											
Javilla						+																	+						
Jengibre	+	+	+	+	+	++	++	++	++	++	++	++	++	+			++	++				+				+			
Jenocuabe	+			+		++	++	++					++	++			++	++											
Juanislama	+					++	++	+		+							++	++	+	+	+	+					+		
Jalapa							+												+								+		
Jaral														+															
Jinote																								++	+			+	
Jocote																								+					
Lechilla													+				+												
Lengua de ciervo																							+						+
“ de vaca			+														+									+			
Llanten	+	+	+			+		++		++		+				++	++	++											
Linaza			+	+						+								+											
Liquidambar					+																								
Limoncillo															+														
Limon															+													+	
Lirio del valle															+														
Lechuga																				+									
Lagarto																						+							
Lombricera																							+						
Leche de vaca																													+
Malva	+++	+	+	+	+	+	+	++	+	++	+	++	++	++	++	++	++	++	++	++	+	+	+	+	++	++	++	++	
Manzanilla	+++	+	+	+	+			++	+	++	+	++	++	++	++	++	++	++	++	++		+							
Marañon	+					+						+														+			
Matasano	+					+																							
Mechoacan					+																+	+	+	+	+	+		+	
Mejovana																						+							
Morera												+																	
Mozote de caballo	+++	++	++	+	+	+	+	+		+	+	++	++	++	++	++	++	++	++	+	+				++	++	++	+	
Mostaza	+					+			+						+														+
Maná					+																								
Menta					+																								
Mastuerzo					+						++	++																	
Maria						+								+															
Mora							+																						
Melisa											+			+															
Mais Negro																													

MEDICAL PLANTS.  
Continued.

MEDICAL PLANTS. <i>Continued.</i>	San José.	Escasú.	Desamparados.	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramón.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo.	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Maravilla . . . . .																		+											
Malacagüite . . . . .																							+						
Melosa . . . . .																							+						
Matiar . . . . .																								+					
Mastranto . . . . .																									+				
Masquitaguiste . . . . .																												+	
Maquenque . . . . .																												+	
Nacasacolo . . . . .																													
Naguapate . . . . .				+		+							+										+	+	+				
Naranjo Agris . . . . .		+				+	+					+	+			+					+		+	+					
Nangú . . . . .																						+							
Oregano . . . . .		+					+						+	+													+		
Orozús . . . . .		+					+						+				+	+	+					+					
Ortiga . . . . .		+					+																						
Ojo de Pajaro . . . . .							+																				+		
Olotillo . . . . .								+																+					
Ocote . . . . .																		+											
Opis . . . . .																			+										
Papelillo . . . . .																													
Platanillo . . . . .		+					+						+			+													
Pilo . . . . .																													
Polypondium . . . . .							+	+					+	+					+	+				+	+				
Polipor de Güilite . . . . .							+																	+	+				
Poroporo . . . . .						+	+	+		+																			
Palmilera . . . . .					+																								+
Parrua . . . . .						+																							
Poró . . . . .						+							+																
Policaria . . . . .								+					+																
Pichichin . . . . .									+				+																
Pipapica . . . . .													+					+						+					
Pico de Pajaro . . . . .													+	+															
Pimiento . . . . .													+																
Pontespate . . . . .													+					+	+										
Perejil . . . . .																		+											
Pepermen . . . . .																		+											
Peinè de Mico . . . . .																					+								
Panamá . . . . .																					+								
Pechote . . . . .																						+							
Palo-Conejo . . . . .																											+		
Palma de Yolillo . . . . .																												+	
Purga de Fraile . . . . .																												+	
Quina . . . . .						+							+	+				+							+				+
Quitirrí . . . . .				+															+		+					+			
Quièbra muela . . . . .										+												+							
Quita calzón . . . . .																					+								
Raiz de china . . . . .						+										+													
“ “ mora . . . . .						+							+																
Reinà de la noche . . . . .		+					+			+		+	+			+												+	
Romero . . . . .		+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+									+	
Reida . . . . .		+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+									+	

MEDICAL PLANTS.  
Continued.

MEDICAL PLANTS. <i>Continued.</i>	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limón.
Ruibarbo . . . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Rudilla . . . . .										+																			
Raspa guacal . . . . .																													
Rosa . . . . .														+															
“ de castilla . . . . .																				+									
“ té . . . . .																					+								
Rabo de puerco . . . . .																						+							
Raicesilla . . . . .																							+		+				
Ruibarbo panzon . . . . .																								+					
Salvia . . . . .	+		+		+	+	+	+		+			+	+	+				+	+		+	+			+	+	+	
Sagú . . . . .	+					+								+															
San Antonio . . . . .																													
San Diego . . . . .																						+							
San Carlos . . . . .										+												+							
Sanco . . . . .	+				+	+	+	+					+	+		+	+			+			+			+	+	+	
Sensitiva . . . . .	+					+							+	+						+							+	+	
Sontol . . . . .			+										+	+				+											
Suelda con suelda . . . . .						+						+	+	+															
Simaruda . . . . .										+		+	+	+															
Sanguinaria . . . . .														+															
Sierra de gallo . . . . .													+	+						+									
Saragundi . . . . .														+							+								
Slémprevia . . . . .													+	+									+						
Sotacaballo . . . . .														+								+						+	
Savila . . . . .																						+	+	+	+	+	+	+	
Sandal . . . . .																							+		+				
Semicontra . . . . .																						+	+						
Sana luego . . . . .																							+				+	+	
Sangre amarilla . . . . .																												+	
Talcacao . . . . .													+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tamarindo . . . . .												+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tapate . . . . .	+				+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tuete . . . . .	+				+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Toro . . . . .										+								+	+										
Tragacanto . . . . .											+																		
Té . . . . .													+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Targúa . . . . .														+				+											
Tucila . . . . .													+	+															
Tacaco . . . . .																					+								
Tuna . . . . .																				+				+					
Tiquilote . . . . .																							+						
Tremenlina . . . . .																								+				+	
Uña de gato . . . . .																													
Urtica . . . . .																					+	+	+	+	+	+	+	+	
Valeriana . . . . .													+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Vainilla . . . . .					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Verbena . . . . .					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Vermut ó absent . . . . .						+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Viborana . . . . .					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Verdolaga . . . . .					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

MEDICAL PLANTS. <i>Continued.</i>	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Varilla negra	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Violeta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.
Vainilla negra	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Yazú	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	+	.	.	+	+	+	.	.	.	.	.	.	.	.
Verba-buena	.	+	+	+	.	.	.	.	.	+	+	+	+	+	+	+	+	.	+	+	+	.	.	.	.	.	.	.	.
“ cacao	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ culebra	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.
“ del pesar	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ santa	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.
“ mora	.	+	+	.	.	.	+	+	.	+	.	+	+	.	.	.	.	+	+	.	.	.	+	.	.	.	+	+	.
“ té	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.
“ tinta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.
“ tora	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ del viejo	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ chau	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.
“ escudilla	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.
Zacate de limon	.	+	.	.	.	.	+	+	.	.	.	+	.	+	+	+	+	+	.	.	.	+	.	.	.	.	.	.	+
“ de olor	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.
Zarzaparrilla	.	.	+	.	+	.	.	+	.	.	.	.	+	+	+	+	+	+	+	+	.	.	.	.	+	+	.	.	+
Zorrillo	.	+	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	+	+	+	.	.	+	.	.	.	.	.	.

## Dye Plants.

The products from which dye stuffs are made are of an excellent quality. The plants are numerous and thrived in the districts indicated below.

DYE PLANTS.	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Achote	+	.	.	.	+	.	+	+	.	.	.	+	+	+	.	.	+	+	.	+	.	.	.	.	.	.	.	.	.
Almendro	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Añil	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	
Azul	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.	+	+	+	.	.	.	.	.	.	.	.	.
Achioteillo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aromo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brasil	.	+	.	.	.	+	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	+	.	+	.	+	.	.	.
Carao	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Capulin	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Carmin	.	+	+	+	.	+	+	+	.	.	.	+	.	+	+	+	+	+	+	+	+	+	.	.	.	.	+	+	
Cebollin	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Coloradito	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Elequeme	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.

DYE PLANTS—Continued.

DYE PLANTS—Continued.	San José.	Escasú.	Desamparados	Puriscal.	Asserí.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparita.	Golfo Dulce.	Limon.
Encino blanco . . . . .	.	.	++	++	+	.	.	+	.	.	.	.	.	.	.	+	.	+	.	.	.	.	+	.	.	.	.	.	
Encino colorado . . . . .	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	
Fruta de agrá . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	
Guacharo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Grana . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Guaitil . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	++	.	.	.	.	.	.	.	
Jiquilite . . . . .	+	.	.	.	++	.	.	+	.	.	.	.	.	.	.	.	.	.	.	++	++	.	+	.	.	.	.	.	
Jaboncillo . . . . .	.	.	.	.	++	.	.	++	++	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	
Jagua . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Mangle . . . . .	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	
Mercolina . . . . .	+	+	.	.	.	++	.	.	.	.	.	+	+	.	.	+	.	.	.	+	.	+	+	+	+	+	+	+	
Moral . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	++	++	++	++	++	++	++	
Moran . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Nacascolo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	++	++	.	+	.	.	+	
Nancite . . . . .	.	.	.	+	.	.	.	+	.	.	.	+	+	.	+	.	.	.	.	.	++	++	++	++	++	++	++	++	
Nance . . . . .	.	.	.	+	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	
Ojo de buey . . . . .	+	.	.	++	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	
Parrúa . . . . .	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	
Pavel . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	
Palo amarillo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Ratoñillo . . . . .	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Sanguinaria . . . . .	++	++	.	.	.	.	+	.	.	.	.	+	.	.	+	+	+	+	+	.	.	+	+	.	.	.	.	.	
Sangre de drago . . . . .	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	
Sanjuanillo . . . . .	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	
Saca-tinta . . . . .	++	++	++	.	.	++	.	.	.	.	.	++	++	.	++	++	.	.	.	++	++	++	++	++	++	++	++	++	
Targuá colorado . . . . .	+	.	.	.	.	+	.	.	.	.	.	+	.	.	++	++	.	.	.	.	.	.	.	.	.	.	.	+	
Tintor . . . . .	+	.	+	.	.	+	.	.	.	.	.	.	.	++	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Tucuico . . . . .	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Uña de gato . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Ubita . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Viborana . . . . .	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Vainilla . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Yerba tinta . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Yuquilla . . . . .	+	+	+	+	+	+	+	.	.	.	.	+	++	+	+	+	+	+	+	+	+	.	.	.	.	+	.	.	
Yerba mora . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	

## Textile Plants.

After further investigation and experiment, it will probably be found that there are few textile plants at present cultivated in any part of the world, that cannot be made to yield profitable results in some parts of Costa Rica.

Below is a list of those at present best known, and the crosses indicate the districts in which they thrive.

TEXTILE PLANTS.	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramón.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Bárbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Algodon . . . . .	+	.	.	.	.	.	+	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	
Agrá . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	
Anono . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Balsa . . . . .	+	+	+	.	.	+	+	.	.	.	.	.	+	.	+	+	.	.	.	.	.	+	.	+	+	+	.	.	
Barrigona . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	
Burio . . . . .	+	+	+	+	+	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.	.	.	.	.	+	+	
Bejuco realé . . . . .	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Buriogre . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Balsamo . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Ceiba . . . . .	+	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	
Coco . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	
Cabrilla . . . . .	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cabuya . . . . .	.	+	+	+	.	+	+	+	+	+	+	+	.	+	+	+	+	+	+	+	+	.	+	+	+	+	+	+	
Cola de gallo . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Coral . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cañamo . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chonta . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Chirrabaca . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Cucharilla . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Capulin . . . . .	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Coyol . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	
Escobilla blanca . . . . .	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	
Enca de junco . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Escalera de mico . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Guarumo . . . . .	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	
Guasimo . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	
Itabo . . . . .	+	.	.	.	+	+	+	.	.	.	+	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	
Junco . . . . .	.	.	.	.	+	+	+	.	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Jucó . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	
Linaza . . . . .	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	
Lino . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Maguey . . . . .	+	+	+	.	+	+	+	.	.	.	+	.	+	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	
Mastate . . . . .	+	.	+	+	+	+	+	+	+	.	.	+	+	+	+	+	+	+	+	+	.	.	.	.	+	.	+	+	
Majagua . . . . .	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	+	+	
Mozote . . . . .	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	
“ de caballo . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	
Palma . . . . .	+	.	.	.	.	+	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	
Pita . . . . .	+	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Piñuela . . . . .	+	+	+	+	.	+	+	+	.	.	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+	
Piña . . . . .	+	+	+	.	.	+	+	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Platano . . . . .	+	+	+	.	+	.	.	.	.	.	.	.	+	+	+	+	+	.	.	.	+	+	.	.	.	+	+	+	
Pochote . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	+	+	
Patarrá . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Palmito . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Peta floja . . . . .	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Paja . . . . .	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Palo de jabon . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	
Peñe de mico . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	
Palmiche . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	
Palma real . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	

TEXTILE PLANTS. <i>Continued.</i>	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Unión.	Liberia.	Nicoya.	Santa Cruz.	Bagacés.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Quiebra plato . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ramio . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soncolla . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Surtuba . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Socorro . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tirrá . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.
Uña de gato . . . . .	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Yute . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.
Zapote de mico . . . . .	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	+

## Agricultural Products.

The amazing success of agricultural products could not have been foretold by the wildest dreamer. We have but to gaze at the list below to find an evidence that Costa Rica has a soil and a climate, equalled perhaps by no other country for agriculture in its broadest sense. It is a land of plant profusion.

In the following lists the crosses indicate the habitat of the individual plants :

AGRICULTURAL PRODUCTS.	San José.	Escasú.	Desamparados	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Alberjas	+	+	+	+	+	+	+					+	+		+		+		+								+	+	+
Anis																													
Arroz	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Aguacate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Anona	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ayote	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Arracacha	+																												
Apio	+																												
Ajo		+	+		+						+			+															
Alpiste					+	+																							
Arrayan																													
Albahaquilla					+																								
Aceituna							+															+		+					
Algodon																													
Berro.	+						+																					+	
Berenjena	+						+						+																
Batata.					+								+			+		+	+		+	+	+	+					+
Cacao.					+					+	+		+			+			+	+	+	+	+	+	+	+	+	+	+
“ de mico					+					+	+		+					+	+	+	+	+	+	+	+	+	+	+	+

AGRICULTURAL PRODUCTS.  
Continued.

AGRICULTURAL PRODUCTS. <i>Continued.</i>	San José.	Escasú.	Desamparados	Luribcai.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naraino.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo.	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparita.	Golfo Dulce.	Limon.
Café	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
“ Caracolillo	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cebada					+										+	+													
Culantro	+	+					+															+	+						
Cidra	+			+	+	+					+		+	+												+	+		
Caz	+												+		+	+													
Col.	+	+	+				+		+	+			+		+	+						+					+		
Cebolla.	+	+	+		+		+	+		+	+		+				+					+				+		+	
Chile picante.	+	+					+															+				+	+	+	+
Cebollin.	+																					+				+			
Caña de azucar	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+
Cuajiniquil	+			+	+									+								+				+	+	+	+
Chayote.	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+	+	+	+				+	+	+	+
Camote.	+		+		+	+	+	+					+	+	+	+	+	+	+	+	+				+	+	+	+	+
Chile dulce	+						+															+	+			+	+	+	+
Coliflor	+												+									+	+			+	+	+	+
Chiverre		+				+	+			+			+						+										
Cubaces		+																									+		
Carro-caliente						+																							
Cereza						+																							
Cebadilla					+																								
Coyol					+				+		+																		
Coroso					+																							+	+
Ciruella					+																+							+	+
Chian						+							+																
Caimito											+	+										+					+	+	+
Coco				+							+	+															+	+	+
Cacao maní													+																
Cerrajilla													+																
Chicasquil													+	+															
Chiverrillo													+																
Capulin																						+							
Cohombro																						+	+	+					
Corrosivo (palo)																						+							
Cañafistula																										+			
Carao																										+			
Chirimoga																										+	+	+	+
Calabazo																												+	+
Durazno	+				+			+					+	+	+	+	+	+	+	+									+
Eneldo	+	+	+	+	+	+																							
Erepe					+																								
Esparrago													+																
Frijoles	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fruta de pan	+				+	+	+						+																+
Freza					+																								
Frambuesa					+																								
Garbanzos	+	+	+	+	+	+	+						+						+								+	+	+
Guayaba	+	+	+	+	+	+	+				+		+	+	+				+	+	+	+	+	+	+				+
Granadilla	+	+	+	+	+	+	+						+	+	+				+	+	+	+	+	+					+
Guaba	+	+	+	+	+	+	+						+	+	+	+			+	+									



AGRICULTURAL PRODUCTS.  
Continued.

AGRICULTURAL PRODUCTS. <i>Continued.</i>	San José.	Escasú.	De samaritadros	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Los Cañas.	Puntarenas.	Esparia.	Golfo Dulce.	Limon.
Granada . . . . .	+				++	++	+				+	+	++	+	+	+	+	++	++	++	++	++	+	+	+	+	+	+	
Guanabana . . . . .					++	++	+					+									++	++		+	++	++	++	+	
Guizaro . . . . .					++																	++	++		++	++	++	+	
Guasimo . . . . .					+																								
Guacal . . . . .												+											+			++			
Garbanzon . . . . .													+													++			
Guastomate . . . . .													+																
Guineo . . . . .																						+							
Guapinol . . . . .																						+							
Guama . . . . .																						+						+	
Higuerilla blanca . . . . .	+						+		+						+							+					+	+	
“ colorada . . . . .	+						+		+													+				+	+	+	
Higos . . . . .	+						+														+				+				
Hinojos . . . . .			+																										
Huigo . . . . .					+																								
Higuito . . . . .					+																								
Higueron . . . . .					+																								
Hismoyos . . . . .													+																
Holosapos . . . . .																						+							
Helequeme . . . . .																							+						
Itabo . . . . .		+																											
Icaco . . . . .					+							+			+							++	++	++	++	++	++	++	
Jinote . . . . .																						+							
Jicara . . . . .																						+				++			
Jocote de corona . . . . .	+	+	++	++	++	++	++	++	++	++	++	++	+				+				+	++	++	++	++	++	++	++	
“ comun . . . . .	+	+	+	+	++	++	++	++	++	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++	
Joico . . . . .				++	++										+														
Jovillo . . . . .																												+	
Linaza . . . . .	+	+	+	+	+	+	+											+	+		+								
Limon-cidra . . . . .	+	+			+																+								
Limon . . . . .	+	+	+	++	++	++	++				++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
Lima . . . . .	+	+	+	++	++	++	++				++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
Lima-agria . . . . .	+	+										+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Lechuga . . . . .	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Maiz . . . . .	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
Manzana rosa . . . . .	++	++									++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
Mostaza . . . . .	+						+					+	+	+	+	+	+	+	+	+	++	++							
Mango . . . . .	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
Matasano . . . . .					+								+																
Manzano . . . . .					++	+		+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mora . . . . .					+																								
Murta . . . . .					+																								
Morera . . . . .					+																								
Marañon . . . . .											++	++										++	++	++	++	++	++	++	
Manzanilla . . . . .													+																
Membrillo . . . . .																		++	+										
Múmbre . . . . .																					+								
Melon . . . . .																					++	++	++	++	++	++	++	++	
Molinillo . . . . .																						+							
Naranja dulce . . . . .	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	

AGRICULTURAL PRODUCTS.  
Continued.

		San José.	Escasú.	Desamparados.	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo.	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Naranjo	de olor	.	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
"	agria	.	+	+	+	+	.	+	+	+	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
"	china	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nabo		.	+	+	.	+	.	+	.	.	+	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.
Ñame		.	+	.	.	+	.	+	.	.	+	.	.	+	.	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+
Nispero		.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+
Nance		.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	.	+	.	.
Nancite		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	.	.	.	.
Ojoche		.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Platanos		.	+	+	+	+	.	+	+	+	+	+	+	+	+	.	+	.	.	.	.	+	+	+	+	+	+	+	+	+
Pita-aya		.	+	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Papaya		.	+	.	.	+	+	+	+	.	.	.	.	+	.	+	.	.	.	.	.	.	+	+	+	+	+	.	.	.
Piña		.	+	.	.	+	+	+	+	+	.	.	.	+	.	+	.	.	.	.	.	.	+	+	+	+	+	.	.	+
Perejil		.	+	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	+	.	+	.	.	.	.
Porotos		.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pacaya		.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Palmito	dulce	.	+	.	.	.	.	+	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Poró		.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pera		.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Piñuela		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Papas		.	.	.	.	+	+	+	+	+	+	+	+	+	+	.	+	.	.	.	.	.	.	.	.	+	+	.	.	.
Pejivalle		.	.	.	.	.	.	+	.	.	.	+	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.
Palmito	amargo	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pepino		.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Papaturro		.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Pipian		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.
Palta		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	+	.	.	+
Papa miel		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
Quimbras		.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rabano		.	+	.	.	.	.	+	+	+	.	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	.	.	.	.
Remolacha		.	+	.	.	+	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	.	.	.	+
Repollo		.	+	.	.	+	.	+	+	+	+	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	.	.	.	+
Rabo de mico		.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Raspa-guacal		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
Sismollo		.	+	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sandias		.	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+
Surtuba		.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Somgapote		.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.
Soncollo		.	.	.	.	+	+	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.
Sierrecillos		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trigo		.	+	.	.	+	.	+	+	.	.	.	.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tacaco		.	+	+	+	.	.	+	+	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.
"	sin estopa	.	+	+	+	.	.	+	+	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.
Tiquisgues		.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tomate de riñon		.	+	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+
"	comun	.	+	+	+	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+
Toronja		.	+	.	.	.	.	+	+	.	.	.	.	+	+	+	+	.	.	.	.	.	.	.	.	+	.	.	.	.
Tuna		.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tucuico		.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tamarindo		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.

AGRICULTURAL PRODUCTS.  
*Continued.*

AGRICULTURAL PRODUCTS. <i>Continued.</i>		San José.	Escazú.	Desamparados	Puriscal.	Asserí.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparta.	Golfo Dulce.	Limon.
Uva																					+									
" de costa																														
Vainilla												+																		+
Yuca		+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Yas																														
Zapote		+	+		+	+		+						+	+	+	+	+	+	+	+	+	+	+	+	+				
Zanahoria						+						+			+	+	+	+	+	+	+	+	+	+	+	+				
Zapotillo		+	+					+	+	+										+	+	+	+		+	+				
Zapallo		+	+	+	+			+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+

Notwithstanding the vastness of the territory, yet almost unexplored, many scientific men who have visited the country, speak of it in the most flattering terms, declaring that there is no country in America, perhaps in the world, where the products of the soil are so varied and numerous as in Costa Rica.

The greatest drawback experienced by the people of Costa Rica in taking advantage of its abundant sources of wealth, has been the smallness of its population. These are obliged to devote their time to the production of cereals, food products, and other articles for home consumption; hence have been unable to increase the number of articles for exportation, which to-day are few in number, the most important being coffee, bananas, sugar, hides, rubber, pearls, cacao, woods and cocoanuts.

## Agricultural Productions.

### Coffee.

This is the principal export of the country. An abundance of the highest quality is produced in the San José, Alajuela, Cartago and Heredia Provinces.

The facility for its cultivation and its superior quality, which has already brought well-merited fame to Costa Rica from the rest of the civilized world, and the high prices obtained for it in foreign markets, have induced the natives to devote their energies almost exclusively to the raising of this important staple.

The result has been that fortunes, more or less large, have been accumulated, not only by the better classes, but also by the peasants, who generally own the houses in which they live, and a few acres of land which yield abundant crops.

The following table shows the places where coffee is cultivated, and the number of plantations and coffee trees, the production in " quintals " (100 pounds), and value of the harvested article in 1889:

PROVINCES AND COUNTIES:	Number of Plantations.	Number of Coffee Trees.	Number of Quintales.	Value in Dollars.
San José . . . . .	1,548	7,125,642	97,463	\$2,241,649
Escasu . . . . .	287	882,955	17,425	400,775
Desamparados . . . . .	301	2,102,120	31,123	715,829
Pursical . . . . .	179	79,412	272	6 256
Aserri . . . . .	218	354,908	827	19,021
Mora . . . . .	121	40,112	209	4,807
Total for the Province of San José	2,654	10,585,149	147,319	\$3,388,337
Alajuela . . . . .	537	2,023,849	28,743	\$661,089
San Ramón . . . . .	201	710,427	5,397	124,131
Grecia . . . . .	489	910,648	12,427	285,821
Naranjo . . . . .	162	296,321	4,028	92,644
Atenas . . . . .	48	105,128	1,193	27,439
San Mateo . . . . .	18	21,142	121	2,783
Palmares . . . . .	371	1,245,325	21,282	489,486
Total for the Province of Alajuela	1,826	5,312,840	73,191	\$1,683,393
Cartago . . . . .	498	728,182	9,991	\$229,793
Paraíso . . . . .	89	989,321	6,208	142,784
La Unión . . . . .	339	1,482,383	14,792	340,216
Total for the Province of Cartago	926	3,199,886	30,991	\$712,793

PROVINCES AND COUNTIES.	Number of Plantations.	Number of Coffee Trees.	Number of Quintales.	Value in Dollars.
Heredia . . . . .	1,327	3,235,427	37,428	\$860,844
Barba . . . . .	237	833,725	10,112	232,576
Santo Domingo . . . . .	368	2,102,127	31,192	717,416
Sta. Barbara . . . . .	592	492,125	3,321	76,383
San Rafael . . . . .	101	332,182	4,798	110,354
Total for the Province of Heredia	2,425	6,995,586	86,851	\$1,997,573
Total for the Republic . . . . .	7,831	26,093,461	338,352	\$7,782,096

Considering that the number of inhabitants in the four above-mentioned provinces is 182,998 (women and children included), the following interesting facts may be drawn by glancing over the foregoing table: There is one coffee plantation for about every twenty-three inhabitants, or one hundred and eighty-two coffee trees per capita, producing one hundred and eighty-four pounds of coffee for each inhabitant, which represents a value of \$42.54 for every man, woman and child in each of the four provinces from the receipts of coffee production alone.

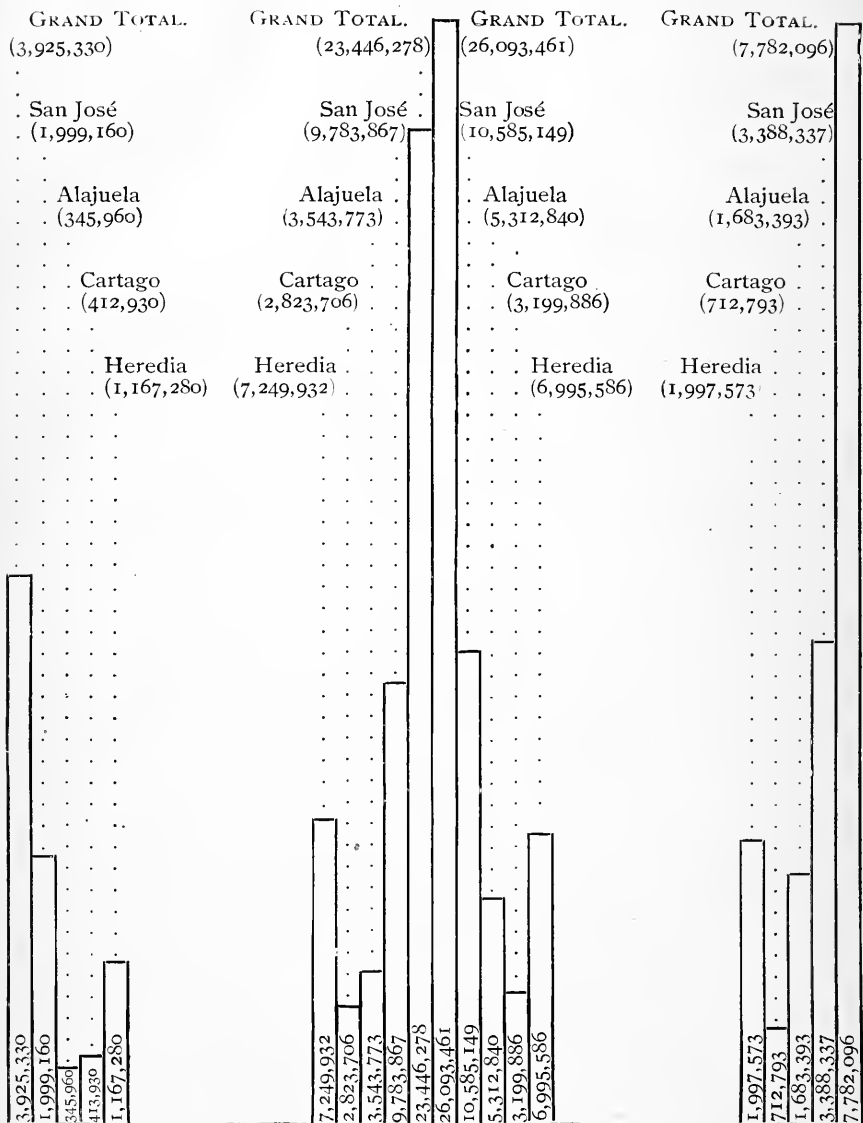
The handsome profits realized in coffee-producing countries have awakened the general interest towards that branch of agricultural industry. Costa Rica and, indeed, all the world, has noticed a remarkable increase in the production, notwithstanding the difficulties experienced, until very recently, in regard to the proper ways of communication with the shipping ports, whereby a large proportion of the profits were swallowed up in the payment of inland freight. The scarcity of labor, and the high prices paid for the same, have also been powerful obstacles. But for these hindrances, the country's wealth derived from the production of such a valuable article as coffee, would be, to-day, many times larger.

The following illustration will show the increase in the coffee production from the years 1884 to 1889 inclusive:

# COFFEE TREES AND VALUE OF CROPS IN THE YEARS

1884.

1889.



Value of Coffee.

Number of Coffee Trees.

Value of Coffee.

SCALE IN THIS TABLE :

$\frac{1}{16}$  inch = 280,000 trees.

$\frac{1}{16}$  inch = \$84,000.

## Manner of Cultivating Coffee and Estimated Profits.

Without attempting to write a monograph on coffee, or on any of the other products to be mentioned in this book, brief descriptions will be made to give at least an idea of how they are cultivated and prepared for the market.

SELECTION OF LAND.\*—In the coffee industry, as in any other agricultural enterprise, the proper selection of land constitutes the first and perhaps the most important feature. It is, therefore, convenient to notice that virgin ground is always preferable; that it should not contain gravel or sand to the depth of at least eight feet; that the sub-soil be argillious and permeable; that the upper layer be of a dark brown or black earth of at least eighteen inches deep; that the land selected should not slope too much, as the rain would carry off the vegetable soil; and finally that the altitude at which it is found be either higher than 1,500 feet, or lower than 5,000 feet of the level of the sea. When too low, the temperature is warm, the tree develops too rapidly and becomes too large, the quality of the coffee is very indifferent and the plantation fails many years sooner. On the other hand, if the land be at a too high elevation, the tree develops very slowly, produces little (although very good quality of coffee), and is apt to be injured by frost.

PREPARING THE LAND.—After having ascertained, by means of proper soundings, that the land selected possesses all the requirements necessary for the cultivation of coffee, the preparation of the ground is the next thing which calls for attention.

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\*For further information on this subject apply to Mr. Richard Villafranca, who will be accessible at the Cotton States and International Exposition for all intending visitors to Costa Rica, and will be pleased to give personal letters of introduction, and furnish any additional specific information that may be required. All communications should be addressed to the Costa Rica Pavilion, Atlanta, Ga., until December 31st, 1895, and thereafter to the care of TYPOGRAPHIC DEPARTMENT, Sackett & Wilhelms Lithographing Co., 310 Fifth Avenue, New York.

The land should be cleared of all the trees, large and small, as well as all the underbrush, ploughed and turned over several months in advance of the epoch of transplanting the coffee trees. The object of this is to keep the soil exposed for a time to the atmospheric influences, before the young plants are definitely located in it. The digging of holes about the month of March is equally advisable, as it gives the soil, which will closely surround the roots of the plants, over a month's time to become richer by the atmospheric exposure. The practice of burning the fallen trees and underbrush is commonly adopted, although experienced planters oppose it, alleging that the soil loses a great deal of its moisture.

**NURSERIES.**—It is always necessary to have at hand a sufficient amount of "almacigo," or young plants ready to transplant, whenever it is necessary to replace a lost tree, or when desired to increase the acreage of the plantation. If a good quality of "almacigo" cannot be obtained from neighboring planters to start at once the "cafetal" or plantation, it becomes indispensable to waste a year making the nursery, which should always be kept.

To make the nurseries, select a piece of level ground containing abundant vegetable soil, with sufficient water at hand to irrigate the seed-plots. These are made a foot high and about forty-eight inches wide, and must be entirely free from rocks, pebbles, or roots of trees. Between the plots, small ditches should be dug to permit the water to run through them frequently. The best seeds need to be chosen, and planted at distances of ten or twelve inches apart; the time for doing this is generally at the beginning of the rainy season, April being the most convenient month. After the seeds have been placed in the manner described, care should be taken to keep the beds well watered and protected from the direct rays of the sun; it is equally important to keep the beds perfectly free from weeds.

Forty days after, the tree begins to show itself, and a year



later it has acquired a height of from eighteen to twenty inches, having from three to four sets, or "stories" of branches.

SHADING.—Although opinions differ as to the convenience of shading coffee plantations, experience has sufficiently proven that the lack of it causes the ground to lose the required moisture, and contract to the point of cracking the upper layers of soil. This occasions the delicate roots to break, and the trees, losing some of their arteries, the nutrition becomes scanty, the leaves turn yellow and fall, and the tree itself, with less vigor, finally fails. To do away with this difficulty, irrigation is recommended by some, but this method, besides being much more expensive, causes the tree to bloom and yield small crops during the year which, if not smaller than the one crop generally produced, are undoubtedly more costly in preparing them for the market, as the abundance of rain does not permit the berry to be dried in the natural way, and hence requires the employment of artificial means in the shape of expensive machinery, and an extra disbursement for fuel. Therefore the best plan is to shade the trees, and for that reason it is convenient to plant bananas or "poró", used for this purpose, at the time that the nursery is started, so that when the transplanting is done, the young coffee trees may find themselves sufficiently protected from the direct rays of the sun.

PLANTING.—This is done about the months of April and May, using the nursery trees already a year old. The holes, as has already been said, having been dug a month in advance are ready to receive the young trees, which are taken out of the nurseries. Special care must be had not to cut any of the roots of the trees which must be transplanted, and to leave around the roots a lump of the earth in which they grew, of about six inches on each side of the trunk. To put one tree into each hole is generally the custom, but some experts rightly allege that two trees in a hole, distant from each

other about ten inches, do not exhaust the soil more quickly than one, and afford the advantage of obtaining double the quantity of coffee, without any more expense than that required for the planting of one tree to each hole.

The distance at which the trees are planted varies according to the fertility of the soil, but is usually nine or ten feet. The order in which they are placed is either in straight parallel lines nine or ten feet apart, forming squares whose four vertex are represented by a tree; or by, also parallel straight lines forming a series of rhombi, having a tree at the vertex of each angle. The first method only gives two directions in which to plow or work the land, while the second gives three.

WEED-CLEARINGS, ETC.—After the small trees have been located in the definite places, constant care should be taken to keep the land free from weeds. The weed-clearings, therefore, have to be, for the first two years, as often as five or six times per year: after that, they become less frequent, as the foliage of the trees prevents the easy growth of weeds. The manner in which the weed-clearing process is practised does away with the under-brush, and again affords a constant increase of the vegetable matter needed for the wholesome growth of the plantation. This result is obtained by the use of a large shovel, wide and thoroughly sharpened, which is made to enter below the roots of the weeds, lifting them with about half an inch of earth up from the middle of the row, and throwing them on the side, forming a continuous heap. In doing this, the land is turned over, leaving the weeds buried under it, thus causing the weeds to rot and increasing the amount of nourishment required for the plants. This process is called “aporca.”

The next weed-clearing is done in a similar way as the first, only that in this case the weeds and earth taken from the line of the trees are deposited in the middle of the row. This is called “raspa.”

The “aporcas” and “raspas” are made during the

whole year alternately, giving the good results already mentioned, and forming a series of ditches with the embanked earth either in the middle of the row, or on a line with the trees, thus preventing the rain from carrying away the vegetable soil.

Care should be taken not to permit any suckers growing from the coffee trees, and to cut off the "guias" or upper shoots, so as to allow the tree to become stouter and more vigorous; otherwise the tree will grow very tall and with comparatively few lateral branches.

GATHERING AND PREPARING.—Three years after the plantation has been started the first crop appears, although naturally a very small one; but the older the tree gets, the larger the crop becomes, until it reaches the eighth year, when the plantation has acquired its fullest development. After that, and for about fifteen or twenty years, the crops are more or less even.

About the end of November, or the beginning of December, the berry assumes a bright red color, much resembling a cranberry, which indicates that it is fully ripe and ready to be picked. This is done entirely by hand, men, women and children being paid so much for every "canasto" (basket) they pick. From the hands of the "cojedores" (pickers) the coffee goes into a large depository, and is then thrown into a machine called "despulpadora" or crusher, that breaks the pulp; the grain being then free, it passes into a cementitious tank, where the saccharine scum that covers it is washed off. This done, the coffee is allowed to leave the tank, and pass through narrow cemental or wooden canals towards large open yards, made perfectly level and smooth by means of bricks or cement. These are called "patios." When the coffee has reached the "patios" the water is allowed to escape through gratings, and the berries are taken out and spread thinly on the patios, where they are left to dry, until they crack under the pressure of one's teeth. From there the

coffee is taken up and placed in a husking machine, called "trilla," where the "pergamino" (parchment) or second skin is detached from the grain. By the next process the coffee is put into a fanning machine, which clears away the parchment, and then the grain goes into a "retrilla" or polisher, where the tissue-like skin is made to come off. The "retrilla" also polishes and colors the grain, for which purpose a teaspoonful of powdered charcoal made of cedar or "poro" wood, is used for each quintal of coffee.

From the "retrilla" the coffee goes again into a fanning machine, and when thoroughly clean passes into the "clasificador" (classifier), which consists of a revolving cylinder covered with wire netting, and having openings of different sizes. The coffee is forced to move through the whole length of the cylinder by means of a spiral lower division in it, which carries the grain along until it fits itself to the proper aperture or class.

In this way the coffee is separated into a number of classes, but before being packed for exportation, it is placed on large tables where women pick out by hand all the black beans, pebbles, and any other impurities.

After this, sacking, weighing and marking are all that has to be done before shipping the coffee to foreign markets.

The following is an important official letter bearing directly upon coffee-culture, and gives additional valuable information :

SAN JOSÉ, Costa Rica, America Central.

*Dear Sir* :—Your wish to be posted in regard to coffee culture in Costa Rica, this office shall hereby comply with so far as concerns the expenses and incomes until the plantation yields regular yearly crops. The calculations cover, as you will notice, the clearing, planting, subsequent cleanings and picking of the berries, but they do not include the subsequent work of converting the berries into coffee ready for shipment for the reason, that the different methods of curing (beneficiar), incur a corresponding difference in expenses. The distinct demands of the different markets do

also, to a certain degree, regulate the curing expenses : for instance, the coloring of the beans, assortment, etc.

Several English and German treatises upon coffee, name more than twenty varieties of the article, but at present we shall deal only with the Arabian coffee, the one principally cultivated in Costa Rica. The few samples of Liberia (African) coffee and a shrub coffee tree, planted as an ornamental garden tree, take no part in the economical result.

You will probably find the yearly crops quoted considerably lower than expected, but the office prefers, in its calculations, to be on the safe side. Besides the question here is not to single out a few prosperous years' yield, but to give the average result for a series of years. The yield can not be quoted as uniform every year, because the coffee tree, like other fruit trees, requires now and then a partial rest, so that, for instance, two years' good crops will, the third year, be followed by an inferior one. Two pounds per tree may be considered a very good average crop, that is to say, twenty centner (qq) per manzana. More can not reasonably be expected, comparing the quantity of coffee with that of cacao. One manzana—500 cacao trees—will average ten centner beans, although the cacao tree is more than twice as large as a coffee tree.

For further information I may refer you to "The Text Book of Tropical Agriculture," by McMillan & Co., London and New York, 1892.

The original price paid for the land, or its value before the cultivation, is excluded from this calculation, because the purchase sum is indeterminable, as it depends on the location and the buyer's individual taste and resources.

As a rule the planter ought to superintend the work in person ; if not, it had better be let out on contract, but never left in day-laborers' hands, without strict surveillance. From the different ways in which the work is disposed of, arises the different expense accounts, very often at considerable variance with the expectation. As an example of contract work, whereby the contractor is made intimately interested in his employers' and in his own combined welfare, the following agreement is hereby quoted :

A party, Messrs. Rudd & Inksetter, of San José, are at present forming a coffee plantation of 75 manzanas, at or near River Tuis, a few miles east of Turrialba. Their contractor receives for the work \$300 per manzana and provides his own board, and at the end of three years' steady work and attendance, 25 manzanas out of the 75 as prop-

erty, without deduction of payment for the land and the plantation.

Said owners, Rudd & Inksetter, have then paid in at the end of three years :

Purchase money for 75 manz. wild land, say at \$30.00 . . . . .	\$2,250
Tilling, planting, cleaning, etc., 75 manz. during 3 years at \$300 per manzana . . . . .	22,500

Expended capital without return . . . . .	<u>24,750</u>
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The 4th year the first regular crop from 50 manzanas at 1 pound per tree, or 10 qq per manzana—500 qq at \$30 per qq . . . . . \$15,000

The 4th year's expenses and income :

5 cleanings of 50 manzas at \$25 per manzana .	\$1,250	
Picking the berries, 500 qq at \$5 per qq . .	2,500	
House for laborers and manager . . . . .	200	
Fencing with wire 50 maz. 3,000 varas at \$50 for each 300 varas . . . . .	500	
One year's salary to the manager of the plantation . . . . .	700	5,150

Net income . . . . .	<u>\$9,850</u>
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The 5th years' crop from 50 manz. at 1½ lb. per tree, or 50 x 15 qq—750 qq at \$30 per qq . . . . . 22,500

The 5th years' expenses :

5 cleanings of 50 manzanas at \$25 per manzana,	\$1,250	
Picking of berries 750 qq at \$5 per qq . . .	3,750	
Repairs on house and fences, say . . . . .	200	
One year's salary to the manager . . . . .	700	5,900

Net income . . . . .	<u>\$16,000</u>
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During the following eight years the annual crop may be quoted at two pounds per tree, or 20 qq per manzana. After this time the regular crops may drop down to 10 qq per manzana, and on neglected plantations as low as 5 qq per manzana.

As before said, this calcule does not include the expenses for converting the fruit into mercantile beans, because the ripe coffee is generally sold in the form of fruit to the large establishments (beneficios) for further treatment. Consequently, expenses for sacks and picking belong to the fruit buyer. But, if you prefer to carry your coffee into market

yourself, the beneficio operator will return to you the ready-made coffee at the rate of 1 qq for every fanega fruit. A fanega fruit will yield, according to the character of the coffee, from 110 to 115 pounds clean coffee. The surplus over 100 pounds is the price for his work.

When you ask experienced planters' opinion about the cost of coffee planting, they will not give a uniform answer. Fred. Tinoco, a renowned producer of coffee and sugar, estimates coffee in first bearing to have cost him from \$300 to \$500 per manzana. He says, that besides the character and location of the soil, the expenses seem to be dependent upon good or bad luck. The nursery may miscarry, part of the transplanted young trees may die and have to be restored, etc.; all mishaps that swell considerably the expense list.

Under regular circumstances the expenses per manzana may be quoted as follows; not including the costs of the manager's board and time:

Clearing and burning wild plants . . . . .	\$30.00	
Nursery beds, per 1,000 plants . . . . .	40.00	
Digging 1,000 holes and planting 1,000 trees . . . . .	40.00	
Planting of 400 bananas or plátano for shade . . . . .	15.00	
400 bananas or plátanos, 4 foot high . . . . .	20.00	
First year's assistance, replanting and cleaning . . . . .	60.00	\$205.00

Second, third and fourth years cleaning and regulating at \$25 per year . . . . .	75.00	
Cost of wild land from \$10 to \$30—say \$30 . . . . .	30.00	105.00

Total cost of land and plantation . . . . .	\$310.00	
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Fourth year yields the first regular crop, say 10 qq at at \$30 per qq, \$300.

Afterwards from 15 to 20 qq per manzana.

The foregoing statements seem to me sufficient to enable you to draw your conclusions in favor of a small or large plantation. I shall only add, that in case you prefer day-work to contract work, your nursery trees, ready for transplanting, will cost you about \$40 per thousand, and by your personal superintendence, you may save some of the contract expenses during the first three years, and afterwards part of the manager's annual salary.

Experienced planters consider six laborers and one boss sufficient, for a 50 manzanas coffee plantation, after it is formed and planted. The picking of the fruit is, of course,

an extra expense. According to the seasons—dry and wet—the day laborers will, boarding themselves, work from 7 o'clock, A. M. to 2 o'clock P. M. for \$1.00 to \$1.25, or from 7 o'clock A. M. to 6 o'clock P. M. for \$1.50. These are the prices paid this year.

If the producer (planter) prefers to handle and ship his coffee on his own account, it will be well for him to remember, that in shipment from seaport to seaport, coffee must be treated with the utmost care and cleanliness, not to lose its original smell and taste. The raw coffee bean is in this respect as delicate as milk. Greasy or smelling sacks, smoke, raw hides stored in the same vessel, bad or damp air rising from the bottom of the hull and condensed under the decks—these and similar lack of precautionary measures may bring the best coffee down to a lower grade, and class the product among any other sorts than the Costa Rican mountain coffee.

Although your letter does not call for the following information, it may be expected that you, with the intention of settling in Costa Rica, may feel interested in posting yourself in regard to the current prices of the following agricultural articles.

Remember that all money calculates in this communication are made under the present course; one dollar American gold equal to \$2.50 Costa Rica currency.

List of Agricultural products and their present retail price:

Coffee, per lb. . . . .	\$0.45	Oranges . . . . .	\$0.10
Cacao, per lb. . . . .	1.00	Oxmeat, fresh, per lb. . .	.30
Tobacco, per lb. (sold		Pork, fresh, per lb. . .	.40
only by the Govern-		Codfish, per lb., sallad.	.50
ment) . . . . .	2.00	Mackerel, per lb., sallad	.50
Bananas, per bunch . .	.50	Butter, per lb. . . . .	1.00
Platanos, per bunch . .	.20	Lard, per lb. . . . .	.35
Yuca, per lb. . . . .	.05	Cheese, per Count. make	.60
Tiquisque, per lb. . . .	.05	Hens, per piece . . . .	1.00
Rice, per lb. . . . .	.15	Chickens, per piece . .	.50
Corn, per centner . . . .	4.00	Eggs, 9 for . . . . .	.50
Field Beans, per centner	8.00	Sugar, per lb. . . . .	.15
Wheat Flour, per cent-		Starch, per lb. . . . .	.20
ner . . . . .	10.00	Sardines, per box . . .	.20
Milk, fresh, per quart .	.30	Salmon, 1 lb. tins . . .	.50
Lobster, 1 lb. tins . . .	.60	Jellies ½ lb. tins . . . .	.40
Figs, per lb., in boxes .	.50	Pears, 2 lb. tins . . . .	1.00
Apples, 2 lb. tins . . . .	1.00	Plums, per lb. . . . .	1.00
Cherries, 2 lb. tins . . .	1.00	Milk ½ lb. tins . . . .	.60
Raisins . . . . .	.60		

Respectfully,

JOHN SCHROEDER.



The following interesting facts are quotations from an official communication, and are further conclusive proofs of the very great profit in a Costa Rica coffee plantation :

“Ten years ago the coffee producer used to get \$10 per quintal (100 pounds), and managed to make a fortune. The price has gradually raised since that time, and, during the last five years, has reached a price as high as \$40 per quintal.”

“A few years ago the Costa Rican coffee was more appreciated in London and Hamburg than in the United States, and the bulk of No. 1 coffee went, therefore, to Europe ; but, during the last few years, considerable amounts have been shipped to San Francisco and Atlantic ports.

“It is worth noting that, on the opposite side of the globe, South India lies on just about the same latitude north as Costa Rica ; their respective growths being quite similar as regards the excellency of quality. On the same line are found, also, the Abyssinian coffee districts which, in ancient times, supplied Persia with the article.

“Under regular circumstances the price of Costa Rican coffee, in the markets of New York and London, does not differ from the one obtained for best qualities of coffee from other countries

“Whether the price of coffee will be higher or lower, during the next ten years, depends not alone on the increased production during this period, but also on foreign nations’ developed taste for coffee as a daily beverage in preference to tea. Coffee as a beverage is, at present, consumed by 100,000,000 people.”

The following statistics may help to foretell the prospects of coffee in the future.

	Average Consumption per Head.	
France . . . . .	2.73	pounds
Belgium . . . . .	13.48	“
Switzerland . . . . .	7.03	“
Russia, European . . . . .	0.19	“
Sweden . . . . .	6.11	“
Norway . . . . .	9.80	“
Denmark . . . . .	13.89	“
Holland . . . . .	21.00	“
Germany . . . . .	3.94	“
Austria . . . . .	2.13	“
Greece . . . . .	1.24	“
Italy . . . . .	1.00	“
United Kingdom . . . . .	1.00	“
United States . . . . .	7.61	“

"As in Denmark and Sweden, alone, during four years, the increased consumption has been 1.50 pounds per head, there is reason to believe that other countries, with the comparative small consumption of from one to two pounds per head, may do likewise.

"The Costa Rica coffee has, during the last years, obtained high prices. This success has induced the planting of considerably large tracts with new coffee; but a large share of these crops will not enter into the markets of the world for three or four years, so that price of coffee will not be materially disturbed during the same period.

"A capital of \$25,000 American gold invested in a coffee plantation of 200 manzanas will, six years after the planting, have produced a real estate of \$100,000 American gold."

Synopsis of the plantations, number of coffee trees, their yield and value in the whole Republic of Costa Rica :

Years.	Number of Plantations.	Number of Coffee Trees.	Harvest in Centals.	Harvest in Kilos.	Value in Dollars.
1883 . .	—	—	—	—	—
1884 . .	7,490	23,446,278	405,053	18,632,438	\$3,925,330
1885 . .	—	—	—	—	—
1886 . .	—	—	—	—	—
1887 . .	—	—	—	—	—
1888 . .	7,607	25,248,686	307,440	14,142,240	5,656,892
1889 . .	7,831	26,093,461	338,352	15,564,192	7,782,096
1890 . .	8,130	26,558,251	333,632	15,347,072	7,573,365
1891 . .	8,232	26,680,907	363,673	16,728,958	10,893,240
1892 . .	8,366	26,911,078	378,224	17,398,704	10,954,744
1893 . .	8,595	26,282,874	331,758	15,160,878	11,611,530
Total . . . . .			2,458,132	112,974,482	\$58,397,197

## Bananas.

Of the exportable articles of Costa Rica, the next in importance to coffee is, undoubtedly, the banana. Its cultivation was begun on the Atlantic coast in 1879, and originated from the inducement offered in the easy transportation afforded by a railroad, which traveled across a small section of the country, admirably suited to this business.

Whether it was due to the commercial caution of the people, who avoid venturing largely in a new enterprise, or

because they did not imagine an article, which was so common and so lightly appreciated in their own country, could attain so great a value in foreign markets, the fact is that the cultivation of bananas began on a very small scale.

The first three hundred and sixty bunches of bananas, which were exported to the United States in 1880, proved that bananas could become a new source of wealth to the country, and the Government promptly ceded liberal grants of land to those who were willing to develop the industry. The results can be well judged by the following table, which shows the number of bunches exported from 1883 to 1889 and their value.

Years.	Number of Bunches.	Value of Bananas.
1883 . . . . .	110,801	\$55,400
1884 . . . . .	420,000	336,000
1885 . . . . .	401,183	302,457
1886 . . . . .	595,970	476,775
1887 . . . . .	889,517	669,544
1888 . . . . .	854,588	530,765
1889 . . . . .	990,898	569,020
Total . . . . .		\$2,939,961

In 1888 there were already sixty-one extensive banana plantations, and a large number of minor ones, which produced 896,245 bunches, valued at \$537,747.

This infant industry is getting to be more important every day. The bananas, which grow spontaneously in the tropical countries, have been, since 1879, an article of foreign commerce. Before, they were planted in the coffee plantations to shade the young trees and shelter the grains from the winds, that would sweep down the unmaturred berry. The fruit of the banana was used to feed pigs, or grew without any cultivation in the mountains and plains, thus going into absolute waste. The laboring classes in those countries generally kept a few plants in their back yards and used the green fruit, boiled with salt, or roasted on hot coals, instead of bread. The varieties of bananas are great, there being some twenty-

five or thirty classes. The better ones are, when perfectly ripe, baked in an oven with a slow fire, after being peeled and buttered along a longitudinal incision which is made in the fruit ; thus prepared, it becomes a delicious food. The production of this article, which was thus limited, has been greatly increased, due to the American fruit companies, who began to send vessels to Mexico, Central America, Columbia, Guianas and West Indies, making monthly trips, and paying fancy prices for the fruit. The sudden rise in the price of an article which was, for those people almost without any value, induced them to start small plantations. The success obtained by the trial, together with the moderate amount of capital, labor and enterprise required, encouraged them and some foreign firms to establish large plantations. These are generally located near the railroad lines, on the banks of rivers, or on the coast, thus saving labor and expense for transportation, and too much handling of the fruit. The lands chosen for the production of the banana are those that contain extensive alluvial deposits, composed chiefly of blue clay impregnated with marine salt, and rich in decomposed vegetable matter. On the large plantations, where more capital is used and the labor is better organized, it can be noticed that the trees are planted from twelve to fifteen feet apart, in the form of squares, and where irrigation is required, trenches are dug between to admit the water passing through them as often as it is necessary. In places where the rain is abundant, or where the soil is damp, the bananas grow best.

It is generally at the end of nine months that the plants mature, and after that time the fruit can be gathered every week in the year, provided the plantation has been well kept and has had a good start. At that time the trunk of the tree attains a height of from eight to ten feet, and is about thirty-six inches in girth. From the trunk, which is porous, and yields an excellent fiber, are thrown out palm-like branches to the number of half a dozen or more. The bunch of fruit

appears at the junction of the trunk and branches, and consists of from four to twelve of what are termed "hands," each hand having eight or twelve bananas on it. A bunch of eight "hands" or clusters is counted as a full bunch; while those that have from five to seven are taken as half bunches; bunches with less than five hands are styled third class; the others, respectively, first and second class. From the root of this tree several shoots or "suckers" sprout, each of which in turn becomes a tree, and bears a bunch of bananas; these may be transplanted. After the bunch has been cut the tree is usually felled. In fact, planters generally cut the tree in order to gather the fruit.

The manner in which the banana is cultivated is certainly the easiest, as very little skill or labor is demanded, nature doing almost all the work. The first cost of planting an acre of land is from \$50 to \$60, the production being from 600 to 800 bunches to the acre, which makes a cost of about seven or eight cents per bunch. These are sold on the plantations to the American fruit companies for from fifty to sixty cents, American gold. They in turn sell them in this country for from one to three dollars per bunch.

It is calculated that a vessel with a dead-weight capacity of 1,000 tons could carry a cargo of 20,000 bunches. It is already a known fact that the loss on the voyage rarely exceeds fifteen per cent.; therefore, if the balance were to be sold at the low price of one dollar per bunch, the profit made on the trip on the cargo of bananas only, without calculating at all the profits that could be had carrying passengers and mails, would amount to no less than \$7,000 after the payment of all the expenses.

The estimated loss of fifteen per cent. which the vessel suffers, could be greatly diminished if there were better facilities of transportation in those countries, where the bananas are taken from the plantations to be loaded on trains, small steamers, or canoes, on springless carts, or on the heads of the laborers.

The bananas intended for exportation are cut while they are green, stowed in the vessel carefully, and in such a way as to permit the air to circulate freely, and to avoid the rays of the sun, which would ripen the fruit before it reached its destination. Any slight bruise made on the skin of a green banana, although apparently unnoticeable at first, develops in the ripe fruit into a black spot, which tends to lessen the value of the fruit in the market.

As it is generally the case, that the fruit produced for exportation in tropical countries, finds ready purchasers in the planters, who pay for it at the moment of its delivery, and ship it to the markets of the United States in their own vessels, there is no established rate of freight on bananas. The owners of the vessels usually share the risk on such cargoes with the insurance companies.

## Expense of Banana Productions and Profits.

To better illustrate the profitable business that can be made by planting bananas, an estimate of the expenses and production of a plantation of 69 acres (40 "manzanas") is given below, taking into consideration, at the same time, the various difficulties to be encountered in tropical countries, such as bad roads, scarcity of labor, high prices of seed, etc.

*Estimates of Richard Villafranca, consul-general of Costa Rica, which were submitted to, and approved by the superintendent of the Costa Rica Railroad.*

Expenses of planting a manzana of land (1:7242 acres) first year :

(1) Cutting down the underbrush, burning, and clearing . . . . .	\$35.00
(2) Price of 270 suckers, at \$25 per thousand . . . . .	6.75
Five weed clearings, at \$7 each . . . . .	35.00
Total cost for the first year . . . . .	<u><u>\$76.75</u></u>

Expenses made on 40 manzanas (69 acres) of land, according to the foregoing estimate :

Clearing, planting, etc., on 40 manzanas, at \$76.75 each . . . . .	\$3,070.00
Board and other expenses of an overseer, for 12 months, at \$30 a month . . . . .	360.00
(3) Interest on \$3,430 in 12 months, at 6 per cent. a year . . . . .	205.80
Total cost for the first year . . . . .	<u>\$3,635.80</u>
Board and other expenses of an overseer, for 12 months . . . . .	360.00
(4) Four weed clearing, at \$280 each . . . . .	1,120.00
(5) Cutting down 54,000 bunches, at 2½c. each . . . . .	1,350.00
Cost of a portable house . . . . .	1,000.00
Plows and other agricultural implements . . . . .	500.00
(6) Interest on \$7,965.80, at 6 per cent. a year . . . . .	477.95
Total cost at the end of the second year . . . . .	<u><u>\$8,443.75</u></u>

#### INCOME DERIVED FROM THE ABOVE PLANTATION.

40 manzanas, with 270 suckers each, equal to 10,800 suckers ; 10,800 suckers yielding 5 bunches each, equal to 54,000 bunches ; 54,000 bunches, sold at 50 cents each, make . . . . .	\$27,000.00
Deducting all of the expenses made in the two years . . . . .	8,443.75
(7) Leaves a net profit at the end of the second year, of . . . . .	<u><u>\$18,556.25</u></u>

#### NOTES.

(1) The estimated cost of \$76.75 per manzana occurs when the land is cleared, burned, etc., before planting ; but it would only amount to \$60 or \$65 if the planting were done first and the clearing after.

(2) The best results are obtained when the trees are planted eighteen feet apart ; thus it would necessitate only 270 suckers to one manzana.

(3) This plantation is supposed to be started by a person who, having only money enough to buy the land, is compelled to mortgage the property to secure funds to improve the same ; therefore it is calculated that he is paying an interest of six per cent. a year and not eight or ten, because the \$3,430 is the total

expense of the first year, which aggregates in small amounts every month. The same is applicable to the second year.

(4) The weed clearings of the second year are neither as frequent nor expensive, as the banana plant is fully developed and its heavy foliage stops somewhat the growth of the weed.

(5) This item is very much exaggerated, as a man can easily cut down a bunch in less than half a minute ; but in order to give the laborers, who usually work ten hours a day, the amplest time to rest, smoke, and take their meals, it is here calculated that they cut down only one bunch every fifteen minutes, or forty a day, for which work they get one dollar ; thus the cutting of one bunch costs two and one-half cents.

(6) The same reasons expressed in Note 3 are good in this case, with the only difference, perhaps, that in this instance the amount calculated for interest could, without danger, be stricken out, as the plantation has been in a state of productiveness since the tenth month after it was started, and no merit has been made of the profits obtained in that period of time from the tenth month to the twenty-third.

(7) The amount of \$18,556.25 represents the clear profits realized up to the end of the second year. In this estimate are not included the profits derived from the sale of bananas from the tenth month to the twenty-fourth ; nor those obtained from planting a great many other fruits, such as lemons, limes, pine-apples, cocoanuts, oranges, marañones, cocoa, etc., all of which necessitate hardly any extra expense to plant and keep in good condition, giving on the other hand the most flattering results.

Most of the bananas grown in those countries, whose names have been already mentioned, are shipped to the United States, the greater part of them going to New Orleans, Baltimore, Philadelphia, Boston, and New York ; from these ports they are distributed throughout the States.

As has already been said, to start a banana plantation requires very little skill, labor or anxiety. After securing a suitable piece of ground, located as near as possible to a navigable river or a railroad, the first thing to be done is to clear away the underbrush ; then dig the holes at distances of from twelve to sixteen feet, forming squares in which the vertices of the four right angles correspond to one hole, wherein a plant or sucker is placed and covered with a small layer of earth.

If the land is mountainous, the trees may be felled either



before or after planting the bananas. Each of these methods has its advantages. If the land be cleared after planting, there will be, naturally, some loss occasioned by trunks falling on the young plants ; but on the other hand, the plantation has been advancing while the clearing was being done, and the saving of time well repays the destruction of the few plants which may be buried under the fallen trees. The second plan delays the starting of the plantation, and, consequently, defers the period for gathering the first crop.

Five weed-clearings the first year, and three or four during each of the succeeding years, are all that are required to keep the plantation in a good state of productiveness. After the second year the trees are fully developed, and the amount of shade thrown prevents a luxuriant growth of underbrush ; thus the weed-clearings are needed less frequently.

At the end of the second year the crop is abundant, and the only labor required to gather it is to fell the tree. For this purpose one or two oblique cuts are bestowed on the trunk with a large, sharp knife, which forces it to bend at once beneath the weight of its ripened burden. It must be remembered that, in the spot where one tree has fallen, two or three others immediately spring into existence (often in less than a week), and as they thrive and bear fruit equally well at all times of the year, there can be a repetition of banana-cutting once or twice a week, according to the size of the plantation.

The above instructions, and a little care in handling the bunches of bananas are all the enterprise requires to obtain the excellent results already shown.

The following is a quotation from an official letter from Costa Rica :

“ A 100 manzana banana plantation, free from any combination with coffee or cacao, will yearly produce 250 bunches per manzana fit for export—25,000 bunches per year. The smaller bunches not suitable for sale, probably from 50 to 100 bunches per manzana, have to be used on the farm for cattle and hogs.

“ During the first five years of its growth, the banana produces export bunches (racimos). Afterwards their size decreases, and hence the quality needed; in this case they are utilized for home consumption.

“ In order to keep the saleable stock up to 25,000 bundles, it is, therefore, necessary to increase the plantation every year with 20 manzanas of new plants. The old part of the plantation, that yearly drops out, is generally converted into pastures (potrero).”

Bunches of bananas exported during 1884 were 425,000 ; in 1893, 1,150,000 bunches were sent out of the country ; making a total in the ten years of 8,650,000 bunches.

## Table of Banana Plantations.

### HARVESTS AND VALUE.

1890.

Number.	Names of Farms.	Yield in Bunches.	Value in Dollars.
1	America	9,295	\$3,295
2	Arta	2,149	743
3	Amistad	28	8
4	Angelina	13,191	4,921
5	Babilonia	38,431	16,717
6	Bornemann	20,649	7,846
7	Brooklyn	24,097	10,002
8	Cabana	1,133	321
9	Concepcion	13,298	4,324
10	Cinarrones	3,789	1,062
11	Cartao	5,226	2,295
12	Costa Rica	18,164	6,893
13	Colombiana	16,556	6,510
14	Cristina	15,785	5,418
15	Cubero	270	100
16	Celina	7,647	2,487
17	Constancia	59	26
18	Cultepper	27,191	10,742
19	Cairo	6,053	2,093
20	Corinto	3,741	1,170
21	Cacao	3,807	1,307
22	Cosme Peralta	2,267	852
23	Dos Novillos	8,607	3,238

TABLE OF BANANA PLANTATIONS.—*Continued.*

Number.	Names of Farms.	Yield in Bunches.	Value in Dollars.
24	Destino	266	80
25	Estrella	1,924	748
26	Experiencia	14,347	4,665
27	Emilia	14,310	5,164
28	Esmeralda	14,790	5,452
29	Freehold	19,214	6,196
30	Foxhall	8,910	3,461
31	Flores	433	144
32	Guapiles	18,931	6,388
33	Granja	4,025	1,253
34	Glencairns	271	85
35	Guasimo	27,515	10,591
36	Hogar	17,638	6,468
37	Hirroquois	13,236	5,630
38	Irazu	7,198	2,395
39	Juanita	58	18
40	Livertad	1,410	495
41	Lola	12,134	4,631
42	Libano	4,887	1,588
43	Miller	3,937	1,220
44	Maria	6,008	2,389
45	Mullner	32,661	12,663
46	Molino	19,354	6,470
47	Montesano	283	70
48	Mercedes	7,501	2,888
49	Malvonía	691	220
50	28 Mile	150	48
51	28 Mile	153	53
52	New Prospect	7,272	2,327
53	Numancia	13,486	4,090
54	New York	7,428	2,460
55	Otillia	4,721	1,613
56	Palnira	14,319	4,428
57	Pacifica	19,284	6,428
58	Parlsmina	8,920	3,049
59	Providencia	6,947	2,370
60	Pepilla	3,462	1,310
61	Panchita	200	67
62	Rosario	4,467	1,580
63	Runnebaum	11,678	4,647
64	Reventazon	14,117	5,321
65	Riatti	6,444	2,443

TABLE OF BANANA PLANTATIONS.—*Continued.*

Number.	Names of Farms.	Yield in Bunches.	Value in Dollars.
66	Rio Verde	12,428	4,262
67	Rio Hondo	8,204	3,194
68	San Nicolas	10,286	3,968
69	Siquirres	20,153	7,553
70	Salvador	7,577	2,505
71	San Jose Creek	1,070	315
72	Santa Clara	4,822	1,707
73	Santa Ines	435	146
74	Selva	6,305	2,227
75	Turrialba	7,744	3,011
76	Toro Amarillo	44	13
77	Williamsburg	20,863	8,095
78	Varias fincas pequenas	374,901	142,986
Total,		1,091,025	\$405,672

## Cocoa.

(COCOA OR THESBRAMA.)

Although this article is not sufficiently cultivated now to rank among the leading products, whose exportation add a notable increase to the wealth of the country, yet its adaptability to various regions in Costa Rica, its excellent quality, the small amount of labor required to grow it, its longevity, and finally, the large profits derived from it, are all favorable points which enable us to predict that soon the cacao industry will fairly rival that of bananas, and, perhaps, even that of coffee. The Government of Costa Rica are fully aware of this fact, and liberal inducements are offered to all who are willing to develop this avenue of wealth.

Large plantations of this industry were worked, many years ago, in the valley of Martina, and great quantities of the article were exported; the enterprise was abandoned, however, partly through lack of transportation facilities, and partly through fear of the Mosquito Indians and pirates, who invaded the region.

Cacao and other valuable products have received but little attention in Costa Rica, since coffee plantations began to absorb all the time and capital; the efforts in this latter direction have been so well compensated, the planters have had no occasion to enter largely into new enterprises, even although so thoroughly profitable as cacao has been proven to be. As has been already stated in previous tables, cacao is cultivated at present in the following countries: Aserri (San Jose), Atenas and Naranjo (Alajuela), Heredia (Heredia), Paraiso (Cartago), in the whole of Guanacaste, in Golfo Dulce (Puntarenas) and in Limon.

#### CACAO EXPORTED FROM 1884 TO 1889.

Years.	Pounds.	Value in Dollars.
1884 . . . . .	9,927	\$3,227
1885 . . . . .	16,271	4,084
1886 . . . . .	5,776	2,223
1887 . . . . .	10,906	4,708
1888 . . . . .	18,410	3,576
1889 . . . . .	28,830	12,386
Total . . . . .	90,110	\$30,276

The number of plantations regularly established up to 1888 was one hundred and ninety-eight, having in all 56,426 trees that yielded in the same year, 331,900 pounds, valued at \$165,770, as follows:

Provinces and Counties.	Number of Plantations.	Number of Trees.	Number of Pounds.	Value in Money.
Naranjo (Alajuela) . . . . .	9	1,142	5,600	\$2,800
Heredia (Heredia) . . . . .	7	452	1,800	720
Limon . . . . .	182	54,832	324,500	162,250
Total . . . . .	198	56,426	331,900	\$165,770

Besides the plantations just mentioned, there is a large number of small plots of which there is no official record. Natural forests are also found where cacao grows in a wild state. Thus far, the amount of cacao cultivated has not been enough to supply local demands, and though small quantities are ex-

ported annually (perhaps due to commercial combinations), instead of having a surplus with which to furnish foreign markets, merchants in Costa Rica have been forced to import comparatively large amounts of an article, which can be so easily grown in the territory of the Republic.

The cocoa produced in 1888 amounted to \$165,770, of which \$3,576 was exported, leaving for home consumption \$162,194 worth of the article. But this was not enough, and during the year, \$26,991 worth was imported; therefore the amount consumed within the country may be estimated at \$189,185.

"A law passed by the government, declares a premium of twenty-five cents to be paid for every tree, planted after the date of the issue of said law, when the plantation has reached the age of three years, if in good condition. By this recent law the premiums will begin to fall due during the latter part of 1897."

## Cacao Farming.

SAN JOSÉ, Costa Rica, America Central.

*Dear Sir* :—Letters asking a minute explanation of the culture of cacao, the expenses and the final result of same, this office shall hereby try to answer, in a general way, by giving a brief account of cacao farming during a period of sixteen years. The space in a letter will not allow full detail of the nature, or expenses of the various works done every year, but enough will be quoted to enable the reader to decide, if he has the means required for making a plantation alone, or if he had better join in company with partners.

I do not hesitate to say, that nearly all pamphlets treating the cacao question have exaggerated the amount of yearly crops, quoting as an average eight pounds per tree and even more. In the present account the average crop is quoted at two pounds, and the value at twenty cents in gold per pound, although the Costa Rican cacao can not be obtained here under forty cents in gold per pound on account of its excellency. The poorer classes drink a cheaper cacao imported to Costa Rica from South America. Parties with limited capital had better go into cacao and coffee planting,

instead of cultivating the coarser grain stuffs on a large scale as sale products.

There is always a call for coffee and cacao, and the cultivation itself is classed as gentlemen farming, leaving plenty of time for outside business, while the cultivation of grain and breadstuffs requires a yearly tilling of the soil, combined with heavy expenses from farm-hands and animals.

A 200 manzanas cacao farm, with about 125 manzanas (217 acres) covered with cacao, is considered very large. According to your own or your friends' means, you may cut down the number of manzanas and proportionate the expenses and amount of crop.

The calculations below are made in Costa Rica currency. At present two dollars and fifty cents Costa Rica currency are equal to one dollar American gold. Labor wages have not increased in proportion, the difference hardly being twenty-five cents Costa Rica currency per day. The reason for this small increase may be attributed partly to the fact, that the people at large consider the intrinsic value of their silver dollar to-day, the same as before. The following calculation was made two years ago, when one dollar and a half was equal to one dollar in American gold.

### CACAO CULTURE ON SHARES.

500 shares, each one of \$40.00 Costa Rica currency, \$20,000 payable by yearly instalments during the first five years :

	Expense.	Income.
1. Payment on 500 shares, at \$10 per share . . . . .		\$5,000
Amount paid on purchase of 200 manz., at \$10 per manz. . . . .	\$2,000	
Total expense for culture and houses . . . . .	2,500	
Cash deposited with the company's treasurer . . . . .	500	
1st year's plantation, 10,000 trees on 25 manz. Total,	\$5,000	\$5,000
2. Payment on shares, \$5,000 — deposit from 1st year, \$500 . . . . .		\$5,500
Total expenses for culture, etc. . . . .	\$3,000	
Cash deposited with C. T. . . . .	2,500	
2d year's plantation, 10,00 trees on 25 manz. Total,	\$5,500	\$5,500
3. Payment on shares, \$5,000 — Deposit from 2d year, \$2,500 . . . . .		\$7,500
2,500 bunches plantains, \$312; 120 cent. corn, \$200, Total expense for culture, houses and horses . . . . .	\$3,410	512
Cash deposited with C. T. . . . .	4,602	
3d year's plantation, 10,000 trees on 25 manz. Total,	\$8,012	\$8,012

4.	Payment on shares, \$2,500 — Deposit from 3d year, \$4,602 . . . . .	\$7,102	
	5,000 bunches plantains, \$625 ; corn, \$200 . . . . .	825	
	Total expenses for culture, houses, etc . . . . .	\$3,430	
	Cash deposited with C. T. . . . .	4,497	
	4th year's plantation, 10,000 trees on 25 manz. Total, \$7,927		\$7,927
5.	Payment on shares, \$2,500 — Deposit from 4th year, \$4,497 . . . . .	\$6,997	
	7,500 bunches plantains, \$937 ; corn, \$200 . . . . .	1,137	
	Total expenses for culture, etc. . . . .	\$3,530	
	Cash deposited with C. T. . . . .	4,604	
	5th year's plantation, 10,000 trees on 25 manz. Total, \$8,134		\$8,134
6.	All shares paid up ; deposit from 5th year, \$4,604 . . . . .	\$4,604	
	10,000 bunches plantains, \$1,250 ; corn, \$200 . . . . .	1,450	
	Total expenses for culture, etc. . . . .	\$2,920	
	Cash deposited with C. T. . . . .	3,134	
	No more new plantation. Total . . . . .	\$6,054	\$6,054
7.	Deposit from 6th year . . . . .	\$3,134	
	10,000 bunches plantains, \$1,250 ; corn \$200 ; cacao, 50 centner, \$2,500 . . . . .	3,950	
	Total expenses for culture, etc. . . . .	\$2,765	
	Dividend on shares paid with 10 per cent. . . . .	2,000	
	Cash deposit with C. T. . . . .	2,319	
	Dividend paid with \$2,000. Total . . . . .	\$7,084	\$7,084
8.	Deposit from 7th year . . . . .	\$2,319	
	10,000 bunches plantains, \$1,250 ; corn, \$200 ; cacao, 150 centner, \$7,500 . . . . .	8,950	
	Total expenses for culture, etc. . . . .	\$3,425	
	Dividend on shares paid with 20 per cent. . . . .	4,000	
	Cash deposit with C. T. . . . .	3,844	
	Dividend paid with \$4,000. Total . . . . .	\$11,269	\$11,269
9.	Deposit from 8th year . . . . .	\$3,844	
	5,000 bunches plantains, \$625 ; corn, \$200 ; cacao, 250 centner, \$12,500 . . . . .	13,325	
	Total expenses for culture, sacks, drying machine, etc. . . . .	\$7,665	
	Dividend on shares paid with 20 per cent. . . . .	4,000	
	Cash deposited with C. T. . . . .	5,504	
	Dividend paid with \$4,000. Total . . . . .	\$17,169	\$17,169
10.	Deposit from 9th year . . . . .	\$5,504	
	2,500 bunches plantains, \$312 ; corn, \$200 ; cacao, 350 centner, \$17,500 . . . . .	18,325	
	Total expenses for culture, etc. . . . .	\$6,015	
	Dividend on shares paid with 60 per cent. . . . .	12,000	
	Cash deposited with C. T. . . . .	5,501	
	Dividend paid with \$12,000. Total . . . . .	\$23,516	\$23,516



11.	Deposit from 10th year . . . . .	\$5,500	
	Last crop of plantains, \$200 ; no corn this year ; cacao, 450 centner, \$22.500 . . . . .	22,700	
	Total expenses for culture, sacks, machinery, etc. . . . .	\$6,555	
	Dividend on shares paid with 80 per cent. . . . .	16,000	
	Cash deposited with C. T. . . . .	5,645	
	Dividend paid with \$16,000. Total . . . . .	\$28,200	\$28,200
12.	Deposit from 11th year . . . . .	\$5,645	
	Corn, \$200 ; Cacao, 600 centner, \$30,000 . . . . .	30,200	
	Total expenses for culture, etc. . . . .	\$6,595	
	Dividend shares paid with 100 per cent. . . . .	20,000	
	Cash deposited with C. T. . . . .	9,250	
	Dividend paid with \$20,000. Total . . . . .	\$35,845	\$35,845
13.	Deposits from 12th year . . . . .	\$9,250	
	Corn, \$200 ; cacao, 700 centner . . . . .	35,200	
	Total expenses for culture, new houses, etc. . . . .	9,075	
	Dividend on shares paid with . . . . .	20,000	
	Cash deposited with C. T. . . . .	15,375	
	Dividend paid with \$20,000. Total . . . . .	\$44,450	\$44,450
14.	Deposits from 13th year . . . . .	\$15,375	
	Corn, \$300 ; cacao, 800 centner . . . . .	40,200	
	Total expenses for culture, fencing, sacks, wagons and horses . . . . .	9,075	
	Dividend on shares paid with 100 per cent. . . . .	20,000	
	Cash deposited with C. T. . . . .	26,500	
	Dividend paid with \$20,000. Total . . . . .	\$55,575	\$55,575
15.	Deposit from 14th year . . . . .	\$26,500	
	Corn, \$200 ; cacao, 900 centner, \$45,000 . . . . .	45,200	
	Total expenses for culture, sacks, repairs on fences and houses . . . . .	\$8,275	
	Dividend on shares paid with 200 per cent . . . . .	40,000	
	Cash deposited with C. T. . . . .	23,425	
	Dividend paid with \$40,000. Total . . . . .	\$71,700	\$71,700
16.	Deposit from 15th year . . . . .	\$23,425	
	Corn, \$200 ; cacao, 1,000 centner, \$50,000 . . . . .	150,200	
	Total expenses, for culture, sacks, repairs, etc. . . . .	\$8,275	
	Total amount deposited with company treasurer . . . . .	65,350	
	Dividend in treasurer's hands, \$65,350. Total . . . . .	\$73,625	\$73,625

#### RECAPITULATION.

Capital invested, \$20,000. Total dividends paid upon said capital during 16 years, \$203,350, or about \$12,700 per year.

The value of the share of the company's property the 16th year stands as follows :

50,000 cacao trees at \$2 with land . . . . .	\$100,000
70 manzanas pasture land at \$50 . . . . .	3,500
Houses with 5 manzanas grounds . . . . .	3,000
Fences . . . . .	1,000
Machines and implements . . . . .	3,000
Wagong, horses and boat . . . . .	360
Harnesses and saddles . . . . .	100
Furniture for house and office . . . . .	190

Total value of property . . . . . \$111,150

You will have observed, that any income from small items of husbandry, as garden stuffs, fowls, dairy products, etc., is not quoted, because household and farm-hands generally consume them, with or without permission.

Also your attention must certainly have been drawn to the large yearly deposit with the company treasurer. If a single party is owner of the plantation, of course no deposit is necessary ; but in a share company a different arrangement has to be followed. Shareholders may more or less neglect to pay in due time, or disunion to be settled may create delay in payments ; but the cacao culture does not permit of any delay in the settlement of expenses, for the plantation will become crippled, or even killed under the quick tropical vegetation. Therefore, a deposit, sufficiently large, to carry on the work under arising controversies, is required.

A cacao plantation, similar to the one under discussion, will continue for an unlimited future in full bearing power, if duly attended to. Without regular attention, the trees will turn sylvan and their fruit diminish in quantity or even disappear. If you or your friends make up your mind to start a cacao farm on shares, then you had better elect among yourselves an administrator, who can always be present on the farm and conduct the work.

Respectfully,

JOHN SCHROEDER.

## Manner of Cultivating Cocoa and Estimated Profits.

SELECTION OF LAND.—The lands best adapted to the cocoa or “cacao” growing should be of a dark, vegetable, alluvial

soil slightly mixed with sand and clay. They need to contain a great deal of moisture, and for that reason level ground, with rivers or streams running through it, is preferable, as the rain water, or that from the irrigating ditches, flowing slowly, has ample time to penetrate to the roots of the trees. Foot-hills, having sufficient moisture, are also desirable, but it must be remembered that, though damp soil is necessary to the wholesome growth of the plant, deposits of water produce a contrary effect and rot the roots of the trees. The temperature required must not fall below 74° F. nor rise above 100° F. Virgin land, forests especially, is doubtless the best, as in it is found the richness of soil required, and in case of forests, the amount of shelter necessary for growing cacao, without incurring the extra expense of planting shade.

**PREPARING THE LAND.**—If the plantation is to be started on forest land, no other preparation is needed except to clear away all the underbrush; but if the land selected has been previously cultivated with other products, it is probably destitute of adequate shading, which must be at once supplied.

**SHADING.**—This is absolutely necessary to protect the trees from the direct rays of the sun, and, when not furnished by nature, must be provided at least six months in advance of the transplanting of the cocoa trees. The banana-tree may be used as a provisional shade, and must be planted at the same time that the coral-tree (*Erythrina*), generally called “madre de cacao” (mother of cocoa), which is usually the one adopted as the permanent shade tree. The banana tree grows very rapidly, thus affording in time the required shade for the newly transplanted cocoa-trees, but, while the latter grow to a height of eighteen or twenty feet, the banana only reaches that of eight or ten feet, and soon fails to accomplish the desired object; hence the necessity of having a tree like the “madre de cocoa,” which grows as high as sixty feet.

After having cleared the land, and placed the stakes in

straight parallel lines—thirteen or fifteen feet apart—to indicate the spot where the cocoa-trees are to be inserted, the planting of the banana-trees is done; these are arranged in such a manner as to supply the necessary shade, and not interfere with the growth of the coral-trees. The latter develop from four seeds, placed around the stakes at a distance of twenty inches. The object of planting four seeds is to allow a selection from the four trees—or as many of them as may thrive—of the most perfect, leaving it there to fulfill its mission as guardian, while the others, being unrequired, are uprooted and cast out. The banana-trees may be destroyed as soon as the “madre de cacao” has developed sufficiently to furnish the necessary protection from the rays of the sun.

**NURSERIES.**—The preparation of a nursery for cacao is very much the same as for coffee; therefore, seed plots of about twelve inches in height, forty-eight inches in width, and of any desired length, have to be made. These are then provided with shade, and ditches are left between them to irrigate the beds frequently. The seeds must be of the best quality; those are considered such which were gathered from the thoroughly ripened pods, growing on the branches of the tree, and not on the trunk itself.

After the seeds have been taken out of the pods, they are put into water for about twenty-four hours, in order to soften the cuticle which surrounds them; this simplifies the operation of separating the skin from the grain. Some planters cut the cuticle lengthwise before putting the seeds into the water, but this plan, besides being more laborious, is somewhat risky, as the grain, itself, may be injured while making the incision. At the expiration of the twenty-four hours the seeds are planted, one by one, at distances of about twelve inches. After that, care must be taken to keep the seed-plots perfectly free from weeds and thoroughly irrigated. Nurseries can be started at almost any time, but the months of October and November are preferable, as by April or March

following, the tree will be ready for transplanting, and may derive the benefits of the rainy season, which begins at that epoch.

PLANTING.—This is done generally at the beginning of the rainy season. In place of the stake inserted in the ground, several months before, we now plant one of the trees, taken out of the nursery with its roots surrounded by a square lump of the earth in which it grew.

CULTIVATION.—After the tree has been located definitely, with the shade necessary for its proper growth, the work is simply that of keeping the land free of weeds and well irrigated; paying, besides, some attention to the unnecessary suckers and shoots, which must be destroyed to give greater vigor to the main tree. Thirty months after the tree has been transplanted, it begins to bloom, but this florescence must not be allowed to develop, for it would rob, prematurely, some of the strength of the tree; hence it must be taken down.

HARVESTING, ETC.—When the plantation is between three and a half and four years old, the first regular crop appears; the trunk and the branches being then covered, from top to bottom, with pods. After that the crops occur twice a year, about the months of July and December, but pods, green and ripe, are found in blossom at all times; therefore, gatherings may be done, once or twice a week, and even daily, according to the size of the plantation. The production continues to increase until the eighth year; after that, it is more or less even for forty years or more.

The pods are from ten to twelve inches long, and resemble a musk-melon; they grow from the branches and trunks of the trees, and are considered fully ripe when their green color has become a slightly yellowish or reddish tint; this occurs about four months after the blossom has appeared. The pods are pulled down from the trees, and the nuts taken out of them by simply breaking or cutting the pod in two. The

nuts are then placed for twenty-four hours in a tank of water, and constantly stirred about to destroy the mucilage-like substance which adheres to them; then they are taken out and spread on a patented stone or "patio" to dry in the sun. The drying process may be done in stoves, or other machines similar to those used for coffee. When the nuts are thoroughly dried, the cacao is ready for the market, and the planter, to reap the large profits invariably derived from the production of this article, the cultivation of which has required so little skill, machinery, capital or labor. Every tree is calculated to yield about fifty pods, each containing about forty grains; fifteen grains weighing about one ounce; thus a single tree's production is estimated in six and one-third pounds.

### **Sugar=cane.**

Although sugar-cane grows well almost all over the country and is extensively cultivated, sugar does not as yet constitute one of the exporting articles, and probably will not as long as there are products like coffee, bananas, cocoa, etc., which bring to the planters handsomer profits. This article is, therefore, produced merely to supply the local demands; but even so, there is always a scarcity of it which requires large importations of foreign sugar.

The sugar-cane is used largely in Costa Rica as forage, in the manufacture of whiskey or "aguardiente"; and to produce the raw sugar or "dulce" which is consumed entirely by country people. There are no refineries, but there are a few establishments, which make granulated and lump sugar of a rather light color, by the centrifugal process; these, and the imported sugar are eaten by people living in the cities, and very rarely anywhere else; the "dulce" being preferred by country people, not so much because of its cheaper price, as for its strong taste to which they are accustomed.

Acreage of the Sugar-cane Cultivated, and the Amount of sugar and "Dulce" Produced in 1889:—

Provinces.	Acres Cultivated.	Number of Pounds of Sugar.	Number of Pounds of Dulce.	Value of Sugar.	Value of Dulce.	Total Value of Sugar and Dulce.
San José . . .	4,819	170,200	6,255,100	\$20,424	\$625,510	\$645,934
Alajuela . . .	5,076	794,800	9,242,000	95,376	924,200	1,019,576
Cartago . . .	1,466	394,500	878,600	47,340	87,860	135,200
Heredia . . .	1,114	—	1,446,400	—	144,640	144,640
Guanacaste . .	719	—	406,600	—	40,660	40,660
Puntarenas . .	1,471	—	207,000	—	20,700	20,700
Limon . . . .	122	8,500	18,300	1,020	1,830	2,850

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Total . . 14,787 1,368,000 18,454,000 \$164,160 \$1,845,400 \$2,009,560

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Added to the \$2,009,560 worth of sugar and “ dulce ” produced in the country, there was \$83,125 of foreign sugar imported, making a total consumption of \$2,092,685 for the year 1889.

The manner in which sugar-cane is cultivated is so simple, it would hardly seem proper to give a description of it here ; but this much may be said :—Sugar-cane, in Costa Rica, grows extremely tall and stout, and unlike that raised in other countries, does not need to be replanted every two or three years. If due care is taken, the plant will give satisfactory results for a term of from five to seven years.

## Cotton and Wheat.

The first of these products received considerable attention many years ago, when it was cultivated, spun and woven into cloth by the natives. The improved and increased means of communication with the outer world gradually brought about many changes ; among these was the introduction of cotton fabrics from foreign ports. The lower prices and the better quality of these imported goods compelled the primitive mills to stop working, and the cotton fields to be abandoned.

Wheat, too, was formerly produced in sufficient quantities to supply the local demands, and was ground into flour by means of small mills of the most primeval order. The cultivation of this grain to-day is badly neglected, and the quantities produced fall far short of satisfying the demand. This is

due entirely to the reasons given before regarding other products :—Viz., scarcity of and high prices paid for labor, and the existence of more profitable industries. In the face of these facts, it is easy to understand how Costa Rica introduces foreign flour, and even the wheat required for the running of a recently established mill which possesses all the modern improvements.

TABLE SHOWING THE AMOUNT OF WHEAT AND FLOUR INTRODUCED IN THE YEARS 1884, 1886, 1887, 1888, 1889.

Years.	Amount of Wheat in Pounds.	Amount of Flour in Pounds.	Total of Wheat and Flour.
1884 . . . . .		158,972	158,972
1886 . . . . .	15,898	283,064	298,962
1887 . . . . .	72,270	125,153	197,423
1888 . . . . .	9,507	167,319	176,826
1889 . . . . .	26,822	209,150	235,972
	<hr/> 124,497	<hr/> 943,658	<hr/> 1,068,155

This official record shows that wheat was planted in 1888 in the provinces of Alajuela and Heredia. In the first of these 59.50 bushels, of which were harvested 226.33 bushels, thus yielding a proportion of four to one. In the province of Heredia 57.85 bushels were sown, and 564.36 bushels were gathered; a proportion of ten to one.

TABLE SHOWING THE AMOUNT OF WHEAT SOWN AND HARVESTED IN 1888.

Counties.	Number of Bushels Planted.	Number of Bushels Harvested.	Rates of Production.
Alajuela . . . . .	11.35	82.04	7.22 to 1
Grecia . . . . .	22.70	66.41	2.93 to 1
Naranjo . . . . .	25.45	77.88	3.06 to 1
Total for the Province of Alajuela . . . .	<hr/> 59.50	<hr/> 226.33	<hr/> 3.80 to 1
Heredia . . . . .	12.77	56.74	4.43 to 1
Santo Domingo . . . .	18.21	223.92	12.29 to 1
San Rafael . . . . .	26.87	283.70	10.55 to 1
Total for the Province of Heredia . . . .	<hr/> 57.85	<hr/> 564.36	<hr/> 9.75 to 1
Grand Total . . . .	<hr/> 117.35	<hr/> 790.69	<hr/> 6.74 to 1



The number of acres planted in the province of Alajuela was 39.66, which yielded at the rate of 5.70 bushels per acre; in Heredia 38.56 acres, which yielded at the average rate of 14.53 bushels per acre; making the total average ten bushels per acre. The county of Santo Domingo produced as high as 18.44 bushels per acre, and San Rafael, 15.84 bushels per acre. Comparing these results with those of the United States, shows that only Wyoming yields 19.5 bushels more than St. Domingo, while there are but ten states which produce more than San Rafael. On the other hand there are twenty states where the production falls below that of Heredia, and ten others which do not reach the average production of Costa Rica.

### **Cocoanuts.**

The cocoanut grows in the warmer portions of Costa Rica, and particularly well on the coasts, where the forests are thickly studded with these gigantic trees. The fruit has had only a limited local demand, and but recently became an export. If the demand of the foreign ports should ever exceed the supply, now found growing in a wild state in the forests, the forming of regular plantations could be done very easily at a nominal cost, as it needs no special oversight or much labor to cultivate this tree, whose fruit has such a multiplicity of useful qualities. Heretofore, a few banana growers or other farmers on the coast have planted a small number of these trees, more with the intention of beautifying their estates, than with that of deriving any pecuniary benefit from them.

### **Rice, Beans and Corn.**

These three products constitute the principal articles of food for the peasants of Costa Rica, and are also seen frequently on the tables of the well-to-do classes.

The cultivation of rice in Costa Rica demands very little care and no irrigation to produce two crops a year of a very

superior quality of grain; but, owing to the causes so frequently mentioned in this pamphlet, there is not enough produced for home consumption, and foreign rice has to be imported to make up the deficiency.

Beans and corn are grown almost all over the country, especially the latter, of which three crops a year is not an uncommon occurrence in a number of places. It seems almost incredible, that with such wonderful facilities, there should be occasion to import, at times, even the necessities of life which would grow so well and abundantly in the country; but such is the lamentable fact, which goes to prove once more that Costa Rica's small population are so fully engrossed in one or two wonderfully profitable enterprises, that many other pursuits, perhaps not equally advantageous, are somewhat disregarded. These are waiting for the current of immigration, anxiously desired by the natives, who would gladly see strangers building large fortunes in a short time, in exchange for the benefits derived by the inhabitants from a larger production, and greater development of the natural resources of this marvelous country.

The following table will show the number of pounds of rice, beans and corn planted in each of the provinces of Costa Rica; giving the production of each article, and the rates of the seeds sown, to the amount harvested in 1888:

TABLE SHOWING THE PRODUCTION OF RICE, BEANS AND CORN IN 1888.

	RICE				BEANS				CORN			
	Number of bushels planted.	Number of bushels harvested.	Rates of production.	Number of bushels planted.	Number of bushels harvested.	Rates of production.	Number of bushels planted.	Number of bushels harvested.	Number of bushels planted.	Number of bushels harvested.	Rates of production.	
San José . . . . .	—	—	—	185.59	1,740.41	9.37	309.00	17,692.72	309.00	17,692.72	57.85	
Escasú . . . . .	—	—	—	1,109.85	9,034.00	8.13	1,073.03	76,395.96	1,073.03	76,395.96	71.19	
Desamparadas . . . . .	9.31	65.95	7.08	503.34	6,225.14	12.36	619.65	13,692.07	619.65	13,692.07	22.09	
Puriscal . . . . .	37.56	603.77	16.07	223.89	5,639.73	25.14	309.00	17,684.29	309.00	17,684.29	57.23	
Aserri . . . . .	9.79	352.69	36.92	46.10	2,336.12	50.67	491.51	18,719.71	491.51	18,719.71	38.08	
Mora . . . . .	110.53	4,075.12	36.86	195.60	3,513.39	17.96	230.05	10,207.61	230.05	10,207.61	44.37	
Total for the Province of San José,	167.18	5,097.54	30.19	2,264.37	28,488.79	12.58	3,032.24	154,392.36	3,032.24	154,392.36	50.91	
Alajuela . . . . .	122.70	7,739.98	63.08	365.74	9,359.09	25.58	621.07	55,228.58	621.07	55,228.58	88.92	
San Ramón . . . . .	135.47	2,428.47	18	294.31	9,123.79	31	1,715.50	78,913.99	1,715.50	78,913.99	46	
Grecia . . . . .	22.69	387.02	17.05	149.85	2,304.77	15.38	629.58	28,316.80	629.58	28,316.80	44.89	
Naranjo . . . . .	19.63	279.01	14.21	230.50	2,784.29	12.07	443.22	35,244.05	443.22	35,244.05	79.51	
Atenas . . . . .	253.40	5,669.65	22.37	406.48	4,605.16	11.32	230.50	6,585.87	230.50	6,585.87	28.52	
San Mateo . . . . .	94.33	7,436.11	78.83	35.26	563.34	15.98	139.60	8,372.33	139.60	8,372.33	59.97	
Palmares . . . . .	—	—	—	151.31	2,269.60	15	378.17	17,022.00	378.17	17,022.00	45	
Total for the Province of Alajuela,	648.22	23,940.27	36.93	1,633.45	31,010.04	18.98	4,157.64	229,684.22	4,157.64	229,684.22	55.24	
Cartago . . . . .	—	—	—	92.06	3,514.81	38.17	1,111.81	80,636.85	1,111.81	80,636.85	72.16	
Paraiso . . . . .	195.53	846.47	4.32	846.61	31,877.95	37.65	1,932.67	88,651.14	1,932.67	88,651.14	45.86	
La Unión . . . . .	—	—	—	10.84	242.33	22.85	82.04	5,456.26	82.04	5,456.26	66.50	
Total for the Province of Cartago,	195.53	846.47	4.32	949.51	35,635.09	37.21	3,127.52	174,744.25	3,127.52	174,744.25	55.87	

TABLE SHOWING THE PRODUCTION OF RICE, BEANS AND CORN IN 1888—Continued.

	RICE				BEANS				CORN			
	Number of bushels planted.	Number of bushels harvested.	Rates of production.	Number of bushels planted.	Number of bushels harvested.	Rates of production.	Number of bushels planted.	Number of bushels harvested.	Number of bushels planted.	Number of bushels harvested.	Rates of production.	
Heredia . . . . .	—	—	—	494.90	6,525.10	13 <sup>45</sup>	656.05	39,395.77	60 <sup>05</sup>	60 <sup>05</sup>		
Barba . . . . .	—	—	—	14.75	147.52	10	51.71	5,379.66	104 <sup>08</sup>	104 <sup>08</sup>		
Santo Domingo . . . . .	—	—	—	2.27	22.69	10	167.15	4,539.20	27 <sup>15</sup>	27 <sup>15</sup>		
Santa Barbara . . . . .	—	—	—	1.42	11.34	8	117.11	7,662.28	65 <sup>42</sup>	65 <sup>42</sup>		
San Rafael . . . . .	—	—	—	23.63	283.70	12	202.61	12,766.50	63	63		
Total for the Province of Heredia,	—	—	—	526.97	6,990.35	13 <sup>28</sup>	1,194.63	69,743.36	58 <sup>38</sup>	58 <sup>38</sup>		
Liberia . . . . .	52.39	1,812.61	34 <sup>59</sup>	66.58	846.97	12 <sup>70</sup>	187.18	11,697.66	62 <sup>47</sup>	62 <sup>47</sup>		
Nicoya . . . . .	83.60	670.82	8 <sup>02</sup>	11.29	535.76	47 <sup>75</sup>	102.92	8,472.76	82 <sup>22</sup>	82 <sup>22</sup>		
Santa Cruz . . . . .	11.35	151.15	13 <sup>31</sup>	17.93	170.02	9 <sup>48</sup>	121.76	14,985.89	123 <sup>07</sup>	123 <sup>07</sup>		
Bagaces . . . . .	11.69	66.52	5 <sup>69</sup>	19.54	113.25	5 <sup>79</sup>	165.73	6,017.87	36 <sup>31</sup>	36 <sup>31</sup>		
Cañas . . . . .	—	—	—	11.36	232.29	22 <sup>20</sup>	19.80	1,084.93	54 <sup>79</sup>	54 <sup>79</sup>		
Total for Guanacaste . . . . .	159.03	2,701.10	16 <sup>38</sup>	126.70	1,917.39	15 <sup>13</sup>	597.39	42,259.11	70 <sup>74</sup>	70 <sup>74</sup>		
Puntarenas . . . . .	60.28	2,748.82	45 <sup>60</sup>	35.03	487.96	13 <sup>92</sup>	224.03	13,129.64	58 <sup>60</sup>	58 <sup>60</sup>		
Esparta . . . . .	521.97	17,692.29	33 <sup>89</sup>	137.59	1,655.16	12 <sup>02</sup>	193.82	8,094.56	41 <sup>76</sup>	41 <sup>76</sup>		
Golfo Dulce . . . . .	306.39	3,032.52	9 <sup>89</sup>	14.19	110.41	7 <sup>78</sup>	120.43	3,657.80	30 <sup>37</sup>	30 <sup>37</sup>		
Total for Puntarenas . . . . .	888.64	23,473.63	26 <sup>52</sup>	186.81	2,253.54	12 <sup>01</sup>	538.28	24,882.00	46 <sup>22</sup>	46 <sup>22</sup>		
Total for Limón . . . . .	—	—	—	—	—	—	—	—	—	—		
Total for the Republic . . . . .	2,058.60	56,059.01	27 <sup>23</sup>	5,687.81	106,295.19	18 <sup>89</sup>	12,647.70	695,705.30	55	55		

TABLE SHOWING THE NUMBER OF ACRES PLANTED WITH RICE, BEANS AND CORN, AND THE NUMBER OF BUSHELS THAT EACH ACRE YIELDED, IN 1888,—BY COUNTIES.

COUNTIES.	RICE.		BEANS.		CORN.	
	Acres.	Average yield per acre.	Acres.	Average yield per acre.	Acres.	Average yield per acre.
San José . . . . .	—	—	123.72	14.06	412.00	42.94
Escasu . . . . .	—	—	739.90	12.20	1,430.70	53.41
Desamparados . . . . .	4.13	15.96	335.56	18.55	826.20	16.57
Puriscal . . . . .	16.69	36.17	149.26	37.78	412.00	42.92
Aserri . . . . .	4.35	81.06	30.73	76.02	655.34	28.56
Mora . . . . .	49.12	82.96	130.40	26.94	306.73	33.27
Total for the Province of San José . . . . .	74.29	68.61	1,509.57	18.87	4,042.97	38.18
Alajuela . . . . .	54.53	141.93	243.82	38.38	828.09	66.69
San Ramón . . . . .	60.20	60.27	196.20	46.50	2,287.33	34.50
Grecia . . . . .	10.08	38.39	99.90	24.07	839.44	33.73
Naranjo . . . . .	8.72	31.99	153.66	18.11	590.96	59.64
Atenas . . . . .	112.62	50.34	270.98	16.99	307.33	21.43
San Matos . . . . .	41.93	177.34	23.50	23.97	186.13	44.98
Palmares . . . . .	—	—	100.87	22.50	504.22	33.75
Total for the Province of Alajuela . . . . .	288.08	83.10	1,088.93	28.47	5,543.50	41.43
Cartago . . . . .	—	—	61.37	57.27	1,483.74	54.34
Paraíso . . . . .	86.90	9.74	564.40	56.48	2,576.89	34.40
La Unión . . . . .	—	—	7.22	33.56	109.38	49.88
Total for the Province of Cartago . . . . .	86.90	9.74	632.99	56.29	4,170.01	41.90
Heredia . . . . .	—	—	323.26	20.18	874.73	45.03
Barba . . . . .	—	—	9.83	15.00	68.94	78.03
Santo Domingo . . . . .	—	—	1.51	15.02	222.86	20.36
Santa Barbara . . . . .	—	—	.94	12.06	156.14	49.07
San Rafael . . . . .	—	—	15.75	18.01	270.14	47.52
Total for the Province of Heredia . . . . .	—	—	351.29	19.89	1,592.81	43.78
Liberia . . . . .	23.28	77.86	44.38	19.06	249.57	46.86
Nicoya . . . . .	37.15	18.05	7.52	71.24	137.22	61.74
Santa Cruz . . . . .	5.04	29.99	11.95	14.22	162.34	92.31
Bagaces . . . . .	5.19	12.81	13.02	8.69	220.97	27.23
Cañas . . . . .	—	—	7.57	33.32	26.40	41.09
Total for Guanacaste, 70.66	38.22	84.44	22.70	796.50	53.06	
Puntarenas . . . . .	26.78	102.64	23.35	20.89	298.70	43.96
Esparta . . . . .	231.98	76.26	91.72	18.04	258.42	31.32
Golfo Dulce . . . . .	136.17	22.27	9.46	11.67	160.57	22.77
Total for Puntarenas, 394.93	59.43	124.53	18.09	717.69	34.66	
Total for the Republic, 914.86	61.27	3,791.75	28.03	16,863.48	41.25	

## Potatoes.

The potatoes cultivated are of an extremely fine quality and, if planted in proper soil and at suitable elevations, the production is large. At present, the real potato is seen only in the provinces of Cartago and Alajuela. Here it is planted with great success on the hillsides, and a careful study of the country will show that many other places are well adapted for potato cultivation. As the railroads are completed, this will be an important and remunerative article, if exported to Colombia and neighboring States, where a more tropical climate renders their growth impossible.

## Sarsaparilla and Vanilla.

These, like the india-rubber, are natural products which grow in the forests without any cultivation or care of any kind. Both are valuable commercial articles and are largely exported to foreign markets.

## Tobacco.

The quality of the tobacco produced in Costa Rica is known to be excellent, and previous to the time it became a government monopoly, large quantities were exported. A few years ago the Government, wishing to have this agricultural industry revived, granted full liberty for its cultivation, restricting only its sale, which continued a national monopoly.

The trial proved then, in regard to tobacco, the same truth that has been made evident with many other products which grow easily and well in the republic; that while the scarcity of labor and the consequent high prices demanded for it prevail in Costa Rica, no attractions will divert the efforts of the people from the production of coffee, bananas, etc., which yield such surprisingly large profits.

The quantity of tobacco raised was not a success, as few would engage in its cultivation; hence the Government was compelled to continue importing it to supply local demands.

Table showing the tobacco imported into Costa Rica during the years 1884, 1886, 1887, 1888 and 1889 :

Years.	Leaf Tobacco.	Cigars.	Cigarettes.	Chewing Tobacco.	Total.
1884 . . .	4,207	14,296	978	16,616	36,097
1886 . . .	95,818	11,841	2,298	—	109,957
1887 . . .	91,207	9,274	3,902	—	104,383
1888 . . .	84,282	12,723	3,056	—	100,061
1889 . . .	132,291	15,628	4,128	—	152,047
<b>Total</b> .	<b>407,805</b>	<b>63,762</b>	<b>14,362</b>	<b>16,616</b>	<b>502,545</b>

## India-rubber.

The *Castilloa elastica* is found growing wild in a great many of the virgin forests of the country, and the india-rubber extracted from it has always been one of the prominent exports of the republic ; adding, thereby, a generous share to its wealth.

The abuses committed by the india-rubber hunters, who, in order to gather the valuable gum in as short a time as possible, often ruined the trees with the careless process adopted by them for this purpose, have compelled the Government to issue a decree prohibiting the extraction of this substance from the national lands without a special permit.

This has been freely granted, however, to any individual or company who has solicited the right, and guaranteed the non-destruction of the trees. Then, again, the Government, desirous of encouraging the increase of such a profitable product, the cultivation of which is so easy and inexpensive, has offered large rewards to those who undertake to plant a certain number of the india-rubber producing trees.

## Indigo.

This is another child of the Costa Rican soil. The conditions in many localities are highly conducive to an extensive growth of the " giquislite " from which the indigo is extracted, but since chemical substances have been introduced in the

place of vegetable dyes, indigo has received scant attention, and is produced in only very small quantities.

## Indigenous Fruits and New Culture.

Nearly everywhere among the plantations are found edible fruits, which are not, at present, objects of special culture

There can be little doubt that scientific study and experiment will enable nature to perfect the present indigenous fruits, and even produce new and improved varieties. Among the most important, but neglected, species are—oranges, limes, peaches, figs, quinces and pomegranates. Nearly all fruits imported from the United States and Europe thrive admirably on the plateau. The local fruits of a more tropical origin are very profuse; the most important are pineapples, aguacates, anonas, sapotes, papaws, jocotes, mangle, grena-dilla and cocoanuts. In addition to these are the fruits of several palms, those of two cacti and a host of others of less importance. Other products of this order that are important to the settlers, since they form a part of staple food, are tor.a-toes, egg-plants, pimento, water-melons, ayote, chayote, zapote and other fruits of various cucurbitacee.

The following sworn statement from a prominent citizen of the United States is quite sufficient to prove that the development of agricultural products can in no wise be exaggerated.

### AFFIDAVIT OF CHARLES DE MARTIN IN REGARD TO THE RESOURCES OF COSTA RICA, JUDGING THEM BY HIS PRACTICAL EXPERIENCE.

I, Charles de Martin, citizen of the United States, and recently from Calistoga, California, wishing to make this report reliable for all to judge of the wonderful resources of Costa Rica, swear that what I below relate is the strict truth.

Having heard for some time a great deal of Costa Rica, I determined to leave California for a while and find out for myself what had been told me. I arrived here on the 8th of October, of 1887, spent some time in search of a nice piece of land, which, besides being situated near the capital,



I could buy cheap. I finally succeeded in securing a lot of over two acres, and also succeeded in having the Government send to California for cuttings. They were sent here in the steamer Honduras, and they laid sixty-nine days on the way. Most of them arrived in a condition not fit to be planted; nevertheless, the few that reached here in good condition I planted with the following result:

JAPANESE QUINCE, planted May 15, 1888 (14 months ago), has had two small crops already.

APPLES, planted May 15, 1888 (14 months ago), have a height of seven feet, and a trunk of six inches in circumference at one foot from the ground.

FIGS, planted May 15, 1888 (14 months ago), have had three crops; the trunk being seven inches in circumference. The first cuttings having reached here almost all useless, I ordered more, which came in good condition, and are now planted, giving the most encouraging results.

VINE TOKAY, planted May 15, 1888 (14 months ago), gave the first fruit on the 4th of July, 1889, on the 3d of August, on the 12th of May of 1889, on the 4th of July, 1889, on the 15th of July, 1889, and still there is some more. The cuttings taken from this vine, which were planted in November, 1888 (8 months ago), are now four feet nine inches high and two and a half inches in circumference.

OLIVES, planted September 17, 1888 (10 months ago), are now six feet high and two and a half inches in circumference.

WINTER NEL PEARS, planted January 22, 1889, have a height of six feet and three inches in circumference.

EGG PLUMS, planted January 22, 1889 (6 months ago), are eight feet high and three and a half inches in circumference.

FRENCH PRUNES, planted January 22, 1889 (6 months ago), are eight feet high and three and a half inches in circumference.

PEACH TREES, planted January 22, 1889 (6 months ago), are eight feet ten inches high, and five inches in circumference, and already bringing forth fruit. The Zealand Peaches, about three years old, can produce twenty dollars worth of fruit, and are just as good for canning as the

California ones, which at home in cans is worth fifteen cents, while here they are sold at seventy-five cents each.

APRICOTS, planted January 22, 1889 (6 months ago), are five feet high.

No one, judging from the foregoing information, can deny the fact, that this is a marvelous country. The soil all over the Republic is of such richness, that even the proud Californian who boasts of the fertility of his country, seeing the fertility and productiveness of this soil, almost imagines his country to be a desert.

The natives are industrious, in their own way, and although knowing positively nothing about agriculture, produce coffe, cocoa, vanilla, bananas, cocoa-nuts, rubber, potatoes, peaches, quinces, wheat, rice, corn, etc.; in fact, all the fruits and vegetables of the Torrid Zone. In conclusion I will add something about corn, marblehead cabbages, strawberries and artichokes, that I have under cultivation.

CORN, planted April 17th (three months ago), is twelve and a half feet high, and the ears are plentiful and very large. The corn here gives from two to four crops a year.

STRAWBERRIES bear all the year round, and in the most abundant manner.

MARBLEHEAD CABBAGES, planted April 17th, 1889, have cabbages so beautiful and sweet as would surprise any one; the weight of them is from ten to twelve pounds each.

ARTICHOKES, planted in November, 1888, are bearing from five to seven each.

It is the general opinion among my American friends here, that people from the States who would come with a few hundred dollars, and knowing something of agriculture, could make an independent fortune in a very short time, especially when, added to the advantages already described, you have a Government disposed to protect foreigners; and the country has so many facilities for transportation, which, together with the high prices of products, the efforts of a farmer would be more than sufficiently compensated.

The price of grapes here is one dollar a pound, apples fifteen to twenty-five cents a piece, pears twenty-five to forty cents each, etc.

I hope this information, which in every respect is a true one, may induce some of my countrymen, who are not well rewarded, to come to Costa Rica, as I am fully convinced that before long they will gladly thank

(Signed) CHARLES DE MARTIN.

SAN JOSÉ, Costa Rica, July 15th, 1889.

The undersigned, Notary Public of this Republic, certifies that the foregoing signature that reads "Charles de Martin," is authentic, and was made in my presence.

(Signed) RICARDO JIMENEZ.

SAN JOSÉ, July 20th, 1889.

The undersigned Assistant Secretary of the Departments of State and Justice of Costa Rica ;

Hereby certifies : that the foregoing signature that reads "Ricardo Jimenez," is authentic.

(Signed) ALBERTO BRENES.

NATIONAL PALACE. SAN JOSÉ, July 20th, 1889.

#### CONSULATE OF THE UNITED STATES OF AMERICA.

SAN JOSÉ, Costa Rica, July 22d, 1889.

I hereby certify that the signature "Alberto Brenes" of the precedent certificate, is authentic, and that the said Alberto Brenes is the Assistant Secretary of State of the Republic of Costa Rica. Witness my hand and Consular Seal.

(Signed) J. RICHARD WINGFIELD.

Fee to 84. \$2.50 U. S. gold.

Paid—J. R. W.

From the Official Gazette, Number 167, of July the 20th, 1889.

#### NUMBER 47.

NATIONAL PALACE, SAN JOSÉ, July 18th, 1889.

In view of the documents formulated on account of the memorial presented by Mr. Charles de Martin, citizen of the United States of America, who now resides in this city, and whereby he asks this Government to place him in possession of the land inscribed in the Public Records, in the part corresponding to the Province of San José, volume 187, page 523, number 7856, and entry number 8 ; basing his demand on what was stipulated on the third clause of the contract which he made with this Department of Interior on the 15th of November, of 1887, to direct the works of planting and cultivating the vine in a place near this city.

#### CONSIDERING :

That in said contract it was agreed that the Government would donate to Mr. Martin the land cultivated, as has already been mentioned ; and which donation would be considered as a compensation for his work, provided that, if after eighteen months counted since the first of January of 1888, Mr. Martin had obtained good results in the cultivation of the vine, according to a report given by experts.

CONSIDERING :

That the report given by the experts John Richard Wingfield and Enrique Jimenez Nunez, to be found on pages three and four of the documents formulated, and wherein it is stated that the results obtained by Mr. Martin in the cultivation of the vine are fully satisfactory ; reason by which he has become entitled to have the donation which he now asks for ; the Vice-President in charge of the Executive power

COMMANDS,

that the necessary instructions be given to the Land Department, so that they should proceed at once to make a deed of donation of said property, as a recompense to the work performed, in accordance with his contract of November 15, 1887.

Let it be published.

Signed by the Vice-President,

(Signed) ZUNIGA.

El infrascrito Encargado de Negocios de la Republica de Costa Rica en Washington. Hace constar ; que lo anterior es una traduccion fiel del documento original.

Washington, D. C., Marzo 9 de 1891.

ANSELMO VOLIO.

[SEAL.]

UNITED STATES OF AMERICA,

DEPARTMENT OF STATE.

*To all to whom these presents shall come, Greeting :*

I certify, that Anselmo Volio, whose name is subscribed to the paper hereunto annexed is now, and was at the time of subscribing the same, Chargé d' Affaires *ad interim* of Costa Rica, at Washington, D. C., duly commissioned; and that full faith and confidence are due to his acts as such.

In testimony whereof, I, James G. Blaine, Secretary of State of the United States, have hereunto subscribed my name and caused the seal of the Department of State to be affixed.

[SEAL.]

Done at the City of Washington, this 16th day of March, A. D. 1891, and of the Independence of the United States of America the one hundred and fifteenth.

JAMES G. BLAINE.

Many hard working men have found it difficult to make 100, or even 1,000 acres of land in the United States produce a fair living.

For the benefit of those, I introduce here a table showing the expense of production in Costa Rica, compared to that of the United States, and I wish again to remind the reader that cultivations can be so arranged, as to assure an almost perpetual harvest.

## Comparative Table of Expense of Production and Net Profit in Costa Rica and the United States.

FOR ONE ACRE OF LAND CULTIVATED WITH TROPICAL  
PLANTS IN COSTA RICA.

One acre is equal to 4,840 square yards or 0.576 of a manzana.

### COFFEE.

Total Expense . . . . .	\$136.22
Total Production, 2,016 pounds, at 40 cts . . . . .	806.42
Net Profit . . . . .	<u>\$674.18</u>

### CACAO.

Total Expense . . . . .	\$94.46
Total Production, 864 pounds, at 70 cents . . . . .	604.80
Net Profit . . . . .	<u>\$510.34</u>

### SUGAR-CANE.

Total Expense . . . . .	\$100.22
Total Production, 6,760 pounds, "dulce", at 4 cents . . . . .	<u>230.40</u>
Net Profit . . . . .	\$150.18

### RICE.

Total Expense . . . . .	\$50.40
Total Production, 2,764 pounds, at 11 cents, . . . . .	<u>304.12</u>
Net Profit . . . . .	\$253.72

BEANS.	
Total Expense . . . . .	\$10.94
Total Production, 950 pounds, at \$7.27 per quintal . . . . .	69.06
Net Profit . . . . .	\$58.12
CORN.	
Total Expense . . . . .	\$22.46
Total Production, 1,647 pounds, at \$4.23 per quintal . . . . .	69.06
Net Profit . . . . .	\$48.60
BANANAS.	
Total Expense . . . . .	\$58.17
Total Production, 1,555 bunches at 30 cents, . . . . .	466.50
Net Profit . . . . .	\$408.33
POTATOES.	
Total Expense . . . . .	\$86.97
Total Production, 380 bushels, at \$12.00 for 11 bushels . . . . .	414.00
Net Profit . . . . .	\$327.03
TOBACCO.	
Total Expense . . . . .	\$190.65
Total Production, 576 pounds, at \$1.00 . . . . .	576.00
Net Profit . . . . .	\$385.85

The calculations herein contained about the production, etc., of the United States have their foundation on figures taken from several publications of the Department of Agriculture, Washington, D. C.

The prices of corn, wheat, etc., etc., are the general average price given by the same Department.

By the foregoing table can be noticed that the maximum and minimum of production, in 1894, of the different articles therein mentioned was as follows :

CORN.	
New Hampshire, 52.4 bushels per acre, valued at	\$23.95 max.
South Dakota . . 3.7      "      "      "	1.69 min.

#### WHEAT.

New Mexico, . . .	36.2 bushels per acre, valued at	\$17.77 max.
South Dakota . . .	4.0 " " "	1.96 min.

#### OATS.

Montana . . . .	40.1 bushels per acre, valued at	\$12.99 max.
South Dakota . . .	7.6 " " "	2.46 min.

#### RYE.

Indiana . . . . .	19.3 bushels per acre, valued at	\$9.67 max.
South Dakota . . .	4.5 " " "	2.25 min.

#### BARLEY.

Oregon . . . . .	38.6 bushels per acre, valued at	\$17.06 max.
Nebraska . . . . .	5.7 " " "	2.52 min.

#### BUCKWHEAT.

Oregon . . . . .	38.0 bushels per acre, valued at	\$21.12 max.
Nebraska . . . . .	3.7 " " "	2.05 min.

#### TOBACCO.

Connecticut . . .	1,516 pounds per acre, valued at	\$103.08 max.
Maryland . . . . .	590 " " "	40.12 min.

#### POTATOES.

Idaho . . . . .	178.0 bushels per acre, valued at	\$95.40 max.
Nebraska . . . . .	22.0 " " "	11.70 min.

#### HAY.

Nevada . . . . .	4.0 tons per acre, valued at	\$34.16 max.
Nebraska . . . . .	0.5 " " "	4.27 min.

Therefore, the article that pays best is tobacco, when planted in the State of Connecticut that yields 1,516 pounds per acre, and its value amount to \$103.08.

Another product which gives a fair income is potatoes, when planted in the State of Idaho, that yield per acre 178 bushels, and its value amount to \$95.30.

The next best are :

Hay, in Nevada, that yields 4.0 tons per acre, valued at \$34.16.

Corn, in New Hampshire, that yields 52.4 bushels per acre, valued at \$23.95.

Buckwheat, in Oregon, that yields 38.0 bushels per acre, valued at \$21.12.

Wheat, in New Mexico, that yields 36.2 bushels per acre, valued at \$17.77.

Barley, in Oregon, that yields 38.6 bushels per acre, valued at \$17.06.

Oats, in Montana, that yields 40.1 bushels per acre, valued at \$12.99.

Rye, in Indiana, that yields 19.3 bushels per acre, valued at \$9.67.

The total number of acres planted in 1894 (in the United States) with the above-mentioned articles, was as follows :

Products.	Acres.	Yielded.	Value.
Corn . . . . .	62,582,269	1,212,770,052 bsh.,	\$554,719,162
Wheat . . . . .	34,882,436	460,267,416 "	225,902,025
Oats . . . . .	27,023,553	662,036,928 "	214,816,920
Rye . . . . .	1,944,780	26,727,615 "	13,395,476
Barley . . . . .	3,170,602	61,400,465 "	27,134,127
Buckwheat. . . . .	789,232	12,668,209 "	7,040,238
Tobacco . . . . .	523,105	406,678,385 lbs.,	27,760,739
Patatoes . . . . .	2,737,973	170,787,338 bsh.,	91,526,787
Hay . . . . .	48,321,272	54,874,408 tons,	468,578,321

Therefore, in the year 1894 there have been 181,975,220 acres of land used up with the nine previously mentioned articles, which produced \$1,630,875,795, or an average of \$8.96 per acre.

## Stock Farming.

This industry is new and will be one of the promising occupations of the future. The cattle of Costa Rica are at present not sufficiently numerous to supply the local demand, but the forage, as can be seen in the table below, is abundantly able to support great herds of cattle. The food is vastly more abundant than in many parts of the United States.

The + indicates the districts where each variety of forage grows.



FORAGE.	San José.	Escasí.	Desamparados.	Puriscal.	Aserri.	Mora.	Alajuela.	San Ramon.	Grecia.	Naranjo.	Atenas.	San Mateo.	Heredia.	Barba.	Santo Domingo.	Santa Barbara.	San Rafael.	Cartago.	Paraiso.	La Union.	Liberia.	Nicoya.	Santa Cruz.	Bagaces.	Las Cañas.	Puntarenas.	Esparia.	Golfo Dulce.	Limon.
Arrocillo . . . . .		+		+				+														+	+	+		+			
Brama . . . . .																		+	+	+									
Chilamate . . . . .					+																								
Caña de cerro . . . . .					+																								
“ “ azucar . . . . .																+													
Cola de venado . . . . .					+																								
Churristate . . . . .					+																								+
Guate . . . . .	+			+	+	+	+					+			+	+	+	+	+	+									+
Gramma . . . . .		+	+																		+	+	+	+	+				+
Gamalote . . . . .		+	+	+	+				+	+		+			+						+	+	+	+	+	+	+	+	+
Guinea . . . . .			+		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Guacimo . . . . .								+																					
Guasimero . . . . .																								+					
Hilosaca . . . . .																					+	+							
Jengibrillo . . . . .		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
Jengibre . . . . .																								+					
Junquillo . . . . .																													+
Lengua de vaca . . . . .																													+
Malote . . . . .							+																						
Pie de paloma . . . . .		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pará . . . . .		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pitilla . . . . .		+	+	+		+	+		+	+	+		+			+		+	+										+
Panza de burro . . . . .																					+								
Platanillo . . . . .																													+
Sabanilla . . . . .					+																								
Sierra de gallo . . . . .																	+	+											
Tumbará . . . . .					+				+																				
Tasoro . . . . .									+																				
Tevcinte . . . . .																						+		+					
Zetilla . . . . .		+	+	+	+	+	+	+				+	+	+	+	+	+												
Zacate amargo . . . . .		+				+	+		+	+	+	+	+	+	+	+	+	+	+								+	+	+
“ de guinea . . . . .		+					+		+			+																	
“ “ castilla . . . . .			+																										
“ “ cerro . . . . .			+	+				+		+	+	+																	
“ “ raton . . . . .								+	+																				
“ “ pará . . . . .																+													
“ ancho . . . . .																													+

# DOMESTIC ANIMALS ON THE FARMS OF COSTA RICA IN 1891.

Provinces and Comarcas.	Number of Cattle.	Number of Horses.	Number of Sheep.	Number of Hogs.
San José . . . . .	51,884	17,542	1,538	23,628
Alajuela . . . . .	62,410	16,774	159	16,185
Cartago . . . . .	48,555	9,900	715	5,109
Heredia . . . . .	35,391	6,380	57	13,241
Guanacaste . . . . .	134,567	24,458	296	2,180
Puntarenas . . . . .	9,667	1,721	—	1,128
Limón . . . . .	3,191	268	—	857
Total . . . . .	345,665	77,043	2,765	62,228

## CONSUMPTION OF BEEF IN THE PROVINCES DURING 1891.

Provinces.	Counties.	Inhabitants	Number of Cattle.	Proportion for One Person.
San José . . . . .	San José	39,112	9,132	0.233
	Escasu	6,522	587	0.090
	Desamparados	6,471	1,077	0.166
	Puriscal	6,845	408	0.059
	Asseri	6,030	482	0.079
	Mora	5,814	314	0.054
	Tarrizu	2,583	152	0.058
	Goicoechea	3,341	226	0.162
Alajuela . . . . .	Alajuela	19,300	2,438	0.125
	San Ramón	9,928	802	0.080
	Grecia	8,797	1,033	0.117
	Atenas	6,208	701	0.112
	San Mateo	3,353	334	0.099
	Naranjo	6,847	639	0.093
	Palmares	2,770	379	0.137
Cartago . . . . .	Cartago	25,898	3,439	0.162
	Paraíso	7,819	1,058	0.135
	La Unión	4,256	625	0.146
Heredia . . . . .	Heredia	16,480	2,836	0.172
	Barba	2,964	485	0.163
	Santo Domingo	5,118	743	0.145
	Santa Barbara	2,845	391	0.137
	San Rafael	4,204	366	0.087
Guanacaste . . . . .	Liberia	5,883	632	0.107
	Cañas	2,165	96	0.044
	Bagaces	1,476	87	0.059
	Santa Cruz	5,948	229	0.038
	Nicoya	4,577	313	0.068
Puntarenas . . . . .	Puntarenas	8,869	1,087	0.122
	Esparta	3,298	407	0.122
Limón . . . . .	Limón	7,484	395	0.052

The following letter from Mr. John Schroeder, the former United States Consul to Costa Rica, himself an expert on all

matters pertaining to agriculture, gives a clear and unbiased view of the subject, and being an official letter to the Bureau of Statistics, has an important bearing on this department of farming.

SAN JOSÉ, Costa Rica, America Central.

*Dear Sir :* It may of course be taken for granted, that your question about the result of cattle-farming in Costa Rica, is based upon foregoing experience in this branch of farming and husbandry in your home. Else the following investigation will only partly benefit you, as the present letter is not intended to serve as a treatise upon general stock-raising, but only upon its practical result at present applicable to Costa Rica.

As statistic computations can only exhibit fully their meaning and their consequences by making them compare with similar computations abroad, I shall also quote what experience has taught in some other countries in the matter of cattle-farming.

Norway in Northern Europe, and Costa Rica in Central America, are both exceedingly mountainous countries. The development and character of the original native cattle are, therefore, in several respects very similar. Their meat and fat are the produce of pastures, but their dairy produce to a great degree depend on hay, grain and roots. It is well to remember that a cow's natural aptness to produce milk is one thing, and the quantity produced another, because the latter depends upon the food and treatment of the animal and not upon its mere propensity. I call your special attention to this distinction, because in ninety cases out of one hundred I have found elsewhere, as well as in Costa Rica, that the complaint as to poor milkers righteously ought to read "poor treatment and insufficient feeding." The introduction of milkers from abroad or the mixing of races is, therefore, in itself no guarantee for success. With proper treatment and judicious selection among the native cattle, I think the immigrant will succeed better than with imported.

Under my personal inspection as farmer in Norway, a comparative trial was made during several years, the trial including nine cows of mixed breed—Norway, Scottish, Holstein—and eighteen cows of pure Norway mountain breed.

The weight of each animal is added as a factor necessary to judge rightly its comparative value as a milk producer. The food was not the best or richest, but the cows received all they could eat of the farm's produce.

From June 15, to October 1, the cows were daily turned out on pasture consisting partly of natural grasses and partly of short white clover. October 1, they were tied up in the stable for the winter (260 days), and the daily food consisted of hay and different roots equivalent to the nutrimental value of twenty pounds of hay ; also of four pounds of oat-straw and eight pounds of rye and wheat-straw for chaff, equivalent to six pounds of hay—in all equivalent to twenty-six pound of hay per day to each cow.

#### COWS OF MIXED NATIVE AND FOREIGN BREED.

Life Weight.	Yearly Milk Produce.
684 pounds.	3,056 $\frac{1}{4}$ quarts.
632 “	3,048 $\frac{3}{4}$ “
564 “	2,876 $\frac{1}{4}$ “
620 “	2,830 $\frac{3}{4}$ “
784 “	2,827 $\frac{1}{2}$ “
463 “	2,452 $\frac{1}{2}$ “
655 “	2,422 $\frac{1}{2}$ “
572 “	2,136 $\frac{1}{4}$ “
640 “	1,653 $\frac{3}{4}$ “

5,714 pounds ; 23,234 quarts, or 2,522 quarts per cow.

#### COWS OF PURE NATIVE BREED.

Life Weight.	Yearly Milk Produce.
425 pounds.	3,895 quarts.
528 “	2,797 $\frac{1}{2}$ “
589 “	2,730 “
651 “	2,388 $\frac{3}{4}$ “
371 “	2,643 $\frac{3}{4}$ “
486 “	2,583 $\frac{3}{4}$ “
447 “	2,523 $\frac{3}{4}$ “
447 “	2,430 “
435 “	2,295 “
601 “	2,272 $\frac{1}{2}$ “
564 “	2,250 “
589 “	2,133 $\frac{3}{4}$ “
271 “	1,996 “
463 “	1,991 $\frac{1}{4}$ “
392 “	1,982 $\frac{1}{2}$ “
636 “	1,968 $\frac{3}{4}$ “
415 “	1,687 $\frac{1}{2}$ “
500 “	1,425 “

8,810 pounds ; 41,264 quarts, or 2,292 quarts per cow.

Total, 14,524 pounds. Total, 64,558 quarts.

By the above comparative trial it is ascertained :

That the twenty-seven cows have produced 444 quarts of milk for every 100 pounds life weight.

That nine cows of mixed foreign and native breed have only given 407 quarts per each 100 pounds life weight.

That eighteen cows of pure native breed gave 468 quarts for every 100 pounds life weight, being considerable more in proportion to their weight and size than heavier foreign mixed cows.

By a similar trial with fifteen cows of pure Ayrshire breed, allowing each one daily fodder and feed to the value of twenty-nine pounds of hay, the average result for one year was 1,954 quarts per cow.

Applying the above observation to Costa Rica, where the native cattle generally is of middle size, I should think it preferable to make good selections among the native stock rather than to introduce foreign large-bodied cattle at expensive cost : and which require a higher and richer feeding than the farmer can procure on the regular pastures.

I have treated the dairy question rather lengthily, because the production of butter and cheese ought to be prominent in Costa Rica, where the cattle need not be stabled, where no provision for hay is made, and where butter can not be had under one dollar per pound and the coarsest of cheese not under forty cents per pound. A 2,000 quarts' milker will yearly produce about eighty-five pounds of butter and three hundred pounds of cheese.

The complaint, that it is very difficult to rear calves in this country so they will turn out good milkers, and that for this reason the farmers have been obliged to import English, Holstein and Swiss cattle to create a superior dairy stock, I shall meet with observations fully well-known in old dairy countries.

The Durham breed and its mixtures are expressly formed for producing meat and fat for the butcher shop, and for this particular purpose the calves are richly fed. The cows will hardly give a rich flow of milk for more than five months after calving. The introduction of Durham blood in a dairy stock will, therefore, not better, but ruin the milking qualities in the original stock. Several farmers in Costa Rica have in this way unintentionally retarded their expected progress.

In forming your young dairy stock you must not allow the calves to enter into a state of fattening, because this

propensity will prevent the milk-organs from development. A richly reared calf is already full-grown at sixteen months of age when the calf is allowed to follow and suck the mother, and it will certainly turn out a butcher calf, even if the mother is a good milker. On the contrary, if the calf is fed moderately with mixture in the milk of coarser feed, its growth will be considerably slower, and it ought not to drop its first calf before two and one-half years old. As its structure is not inclined to form much meat, the milk-organs will develop more strongly when, after calving, the young mother is placed in a good pasture.

The above ought to be an answer to your questions about dairy business and rearing of young stock for a dairy farm.

Next comes the beef-cattle question: The consumption of fresh beef (hardly any beef is barrel-salted) is as general among all classes in Costa Rica as potatoes in Ireland. Fresh beef constitutes the daily dish all the year round, and only a comparatively small quantity is cut in long strips and air-dried for conservation like the Indian pemmikin in North America. In order to maintain a paying dairy-farm, it is necessary to rear the dairy stock on the farm, as grown and good cows seldom are for sale, but young beef cattle—steers—from two to three years old can always be had at the rate of from thirty to forty-five dollars, according to the size, from South America, Golfo Dulce, Guanacaste, Nicaragua, etc. It is, therefore, more than a local question, if it does not pay better to buy lean young cattle from steer-raising districts, and fatten them until ready for sale after five or six months' cattle-run on the rich and ever green pastures of Costa Rica.

Calculating that 100 quarts or 200 pounds of fresh milk give about fifteen pounds of cheese at fifty cents=\$7.50, and three pounds of butter at \$1.00=\$3.00, in all—\$10.50; and that a calf during its sucking time (6 months) consumes at least 600 quarts, then the coming steer (one year old) costs  $6 \times \$10.50$  or \$63.00, besides the daily expense of attendance and risk of infantile sicknesses.

Consequently a farm with extensive pastures had better be stocked with purchased steers, two or three years old at, perhaps, \$44.00, than with home-reared beef cattle at \$63.00.

A regular lean two to three year steer, of native breed, will average 550 pounds life-weight. After five or six months' good pasturage it becomes 650 life-weight. The

same steer killed in lean condition will give from 300 to 350 pounds meat, while fattened it yields from 400 to 450 pounds of meat. On the market this life steer will average \$70.00. Fifteen hands lean steers, imported from South America at \$60.00, may, in fat condition, reach 700 pounds of meat and sell at from \$90.00 to \$110.00.

In districts blessed with evergreen pastures, as Rio Frio, San Carlos, Sarapiquí, Lower Reventazon, San Juan, Hatina, Santa Clara, Sixola, and intermediate smaller valleys where Guinea-grass is cultivated, the fattening process is completed in from five to six months. In other parts of the interior it takes, according to location and grasses, from one to several months more. Guinea-grass grows with advantage only in the hot zone.

All money calculations in this communication are made under the present system—one dollar American gold equal to \$2.50 Costa Rica currency.

From the foregoing you will find that parties with sufficient capital may do well by opening cattle-farms, and present owners of stock "haciendas" coin money, when they thoroughly understand all the branches of the business; but it takes a man in the vigor of youth to succeed. For my part I am now too old to enjoy daily horseback races over extensive cattle runs, and to manage unruly steers and neglectful stock-hands. I prefer to handle a plantation whose trees live, grow and rest in the place in which they are put.

The accounts for one year of a NON-PAYING FARM, exclusively managed as a combined dairy and beef farm, is hereby given to enable you to judge where economical curtailment has to come in to make cattle-farms pay. At the time of my visit this year I found the farm to contain :

Four hundred manzanas a pasture at \$70 . . . . .	\$28,000
100 Manzanas timberland at \$20 . . . . .	2,000
Houses and dwellings for farm hands and stables . . . . .	4,000
40 cows at \$100 . . . . .	4,000
40 calves up to one year of age at \$10 . . . . .	400
40 steers up to two years of age at \$30 . . . . .	1,200
40 steers over two years fat and nearly ready for market at \$70 . . . . .	2,800
60 steers bought lean for fattening at \$50 (high price) . . . . .	3,000
5 saddle and pack horses at \$50 . . . . .	250
4 large hogs, 1,200 pound weight . . . . .	480
20 small pigs . . . . .	40
4 goats and sheep at \$10 . . . . .	80
Furniture, implements, saddles, ox-carts, etc . . . . .	450

Total capital represented . . . . . \$46,700

# INCOME.

Milk of 20 cows at 2,000 qts., one real per quart—40,000 qts .	\$5,000
Milk of 20 cows at 360 qts., one real per quart—7,200 qts . .	900
Sale of 40 steers over two years old, farm-reared, at \$80 . .	3,240
Sale of 60 steers, bought and fattened, at \$80 . . . . .	4,800
15 fanegas, 9,000 pounds corn, at \$20 per fanega . . . . .	300
20 cajuelas frijoles—beans—500 pounds, at \$4 per cajuela .	80
4 hogs at 300 pounds each—1,200 pounds—at 40c. a pound .	480
8 goats and sheep at \$10 . . . . .	80
Income of poultry yard and platanos . . . . .	60

Total income . . . . . \$14,900

# EXPENSES.

Milk to calves, 27,200 quarts—a real indoor expensive young stock . . . . .	\$3,400
60 steers, bought for fattening, at \$44 . . . . .	2,640
15 laborers at \$30 per month—\$450 x 12 months . . . . .	5,400
Beef, poultry, corn, frijoles, milk and platanos included in expenses for household, repairs, implements, fencing .	300

Total expense . . . . . \$13,540

Income . . . . . \$14,900

Expenses . . . . . 13,540

Leaving net profit . . . . . \$1,360

But \$1,360 is hardly three per cent. interest upon the invested capital \$46,700, and not at all satisfactory in a country where you receive ten per cent. yearly interest backed with first-class security with no effort.

If from the capital you subtract the real estate value, \$30,000, leaving the rest \$16,700, as the only capital due to produce interest, then you reach about eight per cent.

In my opinion, there were one or more leaks in the management of this farm which worked to the disadvantage of the yearly result. Without going into a minute criticism you will, for instance, find fifteen farm-hands too many. Farm-hands, of course, are necessary, but they have to be under strict control and limited to the least possible number, or they will eat up all the proceeds, and prove a cancer to the most promising farm.

To manage this farm I would say it needs one laboring foreman (the superintendency conducted by the owner in person) and three cattlemen, who, in the morning, bring in and milk the cows and feed the calves. Also one cheese and butter-maker, who, by using the Centrifugal Cream Separator, will, by 11 o'clock A.M., have easily disposed of all the dairy work. The rest of the day these men, excepting the foreman and the butter-man, may cart out the manure



and clean the stables. If the cows have been stabled and fed during the night they may bring in fresh cut grass for the next night, clean and cure the calves, and, after dinner, by 4 o'clock P.M., bring in the cows and out-going calves to suck their mothers. Also four day laborers, who, with the foreman, are steadily employed in cleaning brush and dead grasses out of the pastures, and one cook, who also attends to the poultry yard and keeps the superintendent's rooms in order. This makes in all ten hired men instead of fifteen. In San Carlos I have seen similar stock farms managed with six men and their foreman. The expense of salary and maintenance for fifteen men is above quoted at \$7,200. Deducting one-third, or \$2,400, this saving added to the foregoing net profit (\$1,360) brings the net income up to \$3,760, or fully eight per cent. interest upon the total capital, \$46,700.

The daily consumption of beef, pork, lard, tallow and other articles manufactured from cattle and hogs, reaches in Costa Rica 100,000 pounds, or 36½ million pounds per year. The consumption of milk, cheese and butter, can, at present, not be ascertained, but it is certain that this country, though eminently fitted for beef, dairy produce and pork-raising, for lack of cattle-farming, has yearly to import from the United States of America and Europe the following articles :—

Salted and canned beef and pork . . . . .	149,850
Tallow (Stearin) . . . . .	76,408
Butter . . . . .	77,204
Cheese . . . . .	67,748
Condensed milk in cans . . . . .	52,126
Cattle (life) . . . . .	1,930,832
Smoked hams and sausage . . . . .	26,116
Tallow for candles . . . . .	237,718
Lard . . . . .	1,822,800
Lard oil . . . . .	10,984
Lard for soup . . . . .	204,636
Fat for greese . . . . .	27,864
Ordinary soap . . . . .	395,900
Meat and pork provisions . . . . .	60,122
Leather, cord and sole . . . . .	7,082
Poultry . . . . .	800

To this importation has to be added smuggled goods, not accounted for, but amounting to a considerable sum, because this illegal trading is the natural consequence of exaggerated traffics, and serves as a popular regulator in all countries burdened with immoderate duty on the first necessities of life.

All products of cattle-farming have consequently a sure home market, and you may feel convinced that capital, in the hands of experienced owners and managers, can be invested with a sure prospect of success in stock and dairy farming in Costa Rica.

Respectfully,

JOHN SCHROEDER.

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## Costa Rica's Greatest Want— Emigration.

The overwhelming natural resources of Costa Rica have led me into a healthy enthusiasm in writing this pamphlet. My statements are, however, in no wise exaggerated. It is an unbiased record of what I have learned from personal experience. It is not a land-booming scheme, but my impression of the Costa Rica of to-day and its future.

Those who have carefully studied this tabulation of facts, must have become convinced of the great need of Costa Rica, namely—an increased population—and the fact is as important to America as to Costa Rica. The element necessary to make this a thrifty garden spot is American emigration. The following is an extract from a letter which I addressed to the Government of Costa Rica, from California, in 1889. This expresses my sentiment to-day.

“If it may be said that Central America, situated as it is, probably forms the most important section of the world, since it is washed on either side by the Atlantic and Pacific Oceans, and is connected on the north with Mexico, while to the south lie all the remaining Republics of Spanish America, and that it presents a thousand facilities for direct and rapid communication with the principal commercial centres of the globe, how can we over-estimate the brilliant possibilities of our small but beautiful country, which surpasses in so many points its neighboring Republics?

Costa Rica, with most fertile lands, with a great variety of climate and products, with numerous rivers that are either navigable, or can be rendered so, with excellent harbors, with extensive forests, rich in timber, and cabinet and dye woods, with a growing industrious and honest population, and above all with the prospect of having on the north and south, canals which will unite the two great oceans, giving to the country the greatest facility for transportation, which will eventually make it the center of traffic of both Americas ; the great warehouse where the immense fleet of vessels, sailing between the two oceans will, of necessity, replenish their stores.

This country, so endowed by nature, is destined to become, not only an agricultural and industrial center, but also a place whither, on account of its mild climate, and its intermediate position between the great cities of North and South America, thousands of people will resort who find themselves obliged to seek refuge from the suffocating heat of summer, and the severe cold of winter.

Since this Republic combines so many advantages which are being but slowly utilized, since an imperious necessity demands it, and since the capital of the country permits it, and we are still indefinitely postponing the progress which we ought now to be making, why should we not take measures at once for reaching this desirable end, since it is now so easily obtainable?

Let us give an impulse to immigration, which is the most potent instrument of progress ; let us gather in those who are honest and industrious, that they may unite to form one people with our own. Moreover, the following words of Sarmiento are not to be forgotten, for they are indisputable truths : " The greatest enemy of the Spanish-American Republics is the wilderness—the insufficiency of population ;" likewise these others of Felix Frias : " Every European man who enters Chili is an element of order, for he is a hand at the plough and in the workshop—a man decently dressed, along side of one in tatters, a worker beside an idler—this is

the great agent of civilization. These are of more avail for our material interests than any institution whatever, and without them, institutions are but a house built on the sand."

Let us follow the example of other countries that have risen within so short a time and now attract the attention of the world, without having the material resources which we possess. While we look with admiration upon what has been done in other places, let us say to ourselves: "We ought to do as much." Firm in our purpose, let us show no vacillation in carrying out an enterprise that will confer greatness upon Costa Rica, and immortality upon the Government by which it is supported.

Let us look for a moment at the progress of California; the development of the Argentine Republic; the wonderful changes that have taken place in Lower California; and the astonishing growth of the settlements of Oklahoma, Guthrie and Purcell in the Indian Territory, in the United States; all of which is due solely to the stream of immigration which they have been able to attract.

California, which in 1847 and '48 was almost a wilderness, without towns, agriculture, manufactures or commerce, has to-day a population of nearly two million, numerous cities of importance, manufactures without number, and a vast extent of cultivated land—all of which, when reduced to figures, give results that cause astonishment.

The Argentine Republic affords clear proof that its rapid progress is due to immigration. In 1865 there were only three settlements in Santa Fé, and now there are a hundred and ninety. At that time there were only 29,585 acres in cultivation, and now there are 1,482,053. On November 3d of the year just past, Mr. E. Sundblad, Commissioner of Immigration in Buenos Ayres, reported that 20,147 persons had arrived during the preceding October, which added to the arrivals from January to September made a total of 125,402. The progress which is observable in this republic, and which

is known to the whole world, has had its beginning within a very few years, so much so that in 1883 the Argentine consul at Havre reported that 794 persons had sailed that year ; the next year the figures rose to 1,704.

On the other hand Mr. S. Lamas, Inspector of Immigrants in Buenos Ayres, under date of November 19, 1888, reported to the Minister that 5,020 French had already arrived in that month, from which he estimated that 100,000 would have arrived by the end of the year. The consuls to the other European nations furnish statements equally as flattering, from which the stream of immigration for the past year may be safely estimated at 200,000 persons, who being judiciously distributed and eager to secure an independent position, perhaps unattainable in their own native country, will have made great progress during the year in their new home.

Even in not very desirable localities progress is seen to be in proportion to immigration. As an example of this we may point to the sandy districts of Lower California, where in 1886 there were only 500 inhabitants, living in wretchedness ; but since that date, when the Mexican Government granted an American company a tract of 18,000,000 acres, all has been changed, and there are not only several towns of considerable importance, connected by 140 miles of railroad, but there are also telegraphs, telephones, electric lights, good hotels, extensive schools and magnificent aqueducts for irrigating lands that previously could not be made to produce anything for want of water.

Perhaps there is not recorded in the history of the world an event so remarkable as the one related by the North-American Press, in describing what passed at Oklahoma at 10 A. M. on the 22d of April last, when 15,000 persons in 3,090 wagons and on several hundred horses, were waiting for Captain Woodson to give, in the name of the United States Government, the word " Forward," upon which they should proceed to travel the remaining two miles to the place, previously

inhabited only by Indians, but now to be apportioned among those desiring to form the new settlement. By the night of that same day, April 22d, the lots had been staked off, and the streets laid out ; and the tents of the host, pitched in their respective places, formed a city that will serve forever as an example to other nations, and prove that the fearless and go ahead American character is capable of accomplishing apparent impossibilities. Two days later, there not being room for the people who continued coming, it became necessary to locate in other places, the towns called Guthrie, Purcell and Harrison, which at once received 6,000, 4,000 and 3,000 inhabitants respectively. The next day Guthrie had two banks doing good business ; and at the post office at 9.15 A. M., 233 persons stood in line waiting their turn, 500 having already been waited on. If all this was done in places where the natural resources are less abundant and varied than in Costa Rica, there is no reason to doubt our becoming in a very short time a happy, prosperous nation, if we can turn towards our fertile waste places that stream of immigration now flowing into less desirable localities.

The people of Costa Rica love the institution of the United States ; they heartily admire its worthy sons. It is because of this, and other fraternal sentiments, and because they appreciate the importance of their peculiar ingenuity, inventive ability, and original mechanical resources, that Costa Rica offers to share with them its natural wealth, its hospitality, and its friendly congratulations.

Enough has been said throughout this pamphlet to show that wealth cannot be plucked from the flowering plants without effort, nor can gold be washed from the surface dust without hard work. Emigrants should not go to Costa Rica, or any other new country, without enough money to assure an independence for the greater part of the first year. A man who has this, and a Yankee love of work and industry, is certain to succeed in Costa Rica.

## Where to Settle.\*

Where to settle is probably the most difficult problem. A mistake in this will make the difference of success or failure to the emigrant. So much depends upon the special trades or industries to which persons are adapted, or which they may select as their future occupation, that this cannot be definitely discussed here. This applies particularly to agriculture, since there is a vast difference between the high and the low lands, with a corresponding difference in the productions of the soil. To make an advantageous selection requires special knowledge of the country, which a new comer would not be apt to acquire until many unfortunate mistakes had been made. Upon this, and all other questions, I shall be glad to talk personally to intending settlers at the Cotton States and International Exposition. All letters of inquiry from intending visitors or settlers will receive prompt attention.

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\* For more detailed information on this subject apply to, or address **Mr. Richard Villafranca**, at the Cotton States and International Exposition until December 31, 1895; and thereafter at **TYPOGRAPHIC DEPARTMENT, Sackett & Wilhelms Lithographing Co., 110 Fifth Ave., New York.**





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